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THE

ENTOMOLOGIST'S MONTHLY MAGAZINE:

CONDUCTED BY

H. G. KNAGGS, M.D., F.L.S. **E. C. RYE.**
R. McLACHLAN, F.L.S. **H. T. STAINTON, F.R.S.**

VOL. VII.

> "Wenn man so in sein Museum gebannt ist;
> Und sieht die Welt kaum einen Feiertag,
> Kaum durch ein Fernglas, nur von weiten,
> Wie soll man sie durch Ueberredung leiten?"
> *Goethe.*

LONDON:
JOHN VAN VOORST, 1, PATERNOSTER ROW.

1870-71.

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LONDON:

PRINTED BY A. NAPIER, SEYMOUR STREET, EUSTON SQUARE.

PREFACE.

Seven years have elapsed since we submitted our first number to the Entomologists of this country. That this was effected with some amount of misgiving, is not to be denied. We knew that former disinterested attempts to establish purely Entomological Journals had, sooner or later, succumbed to what appeared an inevitable, and large, pecuniary loss. It is with pardonable self-congratulation, then, that we see the close of our *Seventh* Volume; and we believe that any deficiency in the collective balance-sheet of the undertaking, so far as it has gone, is likely to be eventually, if but slowly, reduced and extinguished.

We thank our supporters for so ably and successfully seconding our endeavours to furnish Entomologists with a standard serial at a moderate cost; if each of them will continue his assistance, and introduce the Magazine to the notice of his friends, we shall not fear the future.

1, *Paternoster Row, London,* E.C.
May, 1871.

THE
Entomologist's Monthly Magazine
VOLUME VII.

REMARKS ON THE RECENT MIGRATION TO BRITAIN OF *ACRIDIUM PEREGRINUM*, A LOCUST NEW TO THE EUROPEAN FAUNA.

BY EDWIN BROWN.

By a very singular coincidence, on the very day in October last when the clergymen of the Church of England were reading to their congregations that sublime description by Joel of the ravages of the locust, which formed part of the lessons for the day, a flight of locusts, new to Europe, was silently spreading itself over this island. On the Monday and Tuesday following the Sunday above-mentioned, two specimens of a species of locust were captured in the brewery yards of this town. These proved to be *Acridium peregrinum* of Olivier; a species not mentioned in any work upon European *Orthoptera.*

Several notices appeared in the newspapers about the same time of isolated occurrences of locusts in different parts of the country, as, for instance, at Waterford, in Warwickshire, Worcestershire, Derbyshire, Staffordshire, and Nottinghamshire; but not, as far as I am aware, further north than Derbyshire. In several of these recorded cases, I satisfactorily ascertained the species to be *A. peregrinum;* and as, apparently, no specimen of *Pachyteles migratoria* fell under the notice of any entomologist in this country last autumn, it is fair to presume that all the cases mentioned in the public papers, in or about October last, were those of *A. peregrinum.*

Mr. Bond informs me that at Plymouth many specimens were taken, and that in one case, at least, this insect was thought to be an escaped canary by those who saw it flying about the gardens in that town.

These new visitors seem to have reached our south and south-west coasts, and to have spread themselves very sparsely over about one-half the length of England, and also to have reached the south of Ireland. But how did they reach us? From whence did the swarm start that honoured us with a visit?

In the hope of eliciting some information on this point, I caused a notice of the occurrence to be inserted in a French entomological periodical, which has an extensive circulation on the continent, asking whether the species had been seen, at or about that time, in the south of Europe; but no intelligence whatever has reached me of this insect having been observed elsewhere in Europe.

According to Serville, and other orthopterists, this species occurs in vast myriads in central and eastern Asia, also in Arabia and the northern and north-western parts of Africa, and it is a species preeminently destructive to vegetation. Indeed, it is very probable that this is the very species, the ravages of which the prophet Joel so eloquently describes.

If this flight of locusts had reached us from the north of Africa, it is scarcely likely that the passage would have escaped notice in Spain, Italy, or France. The total silence of continental naturalists on this matter leads me to suspect, that the individuals which reached our shores were the straggling remains of a large horde, which, having set out from the coast of north-western Africa, and having been caught by the south-easterly winds, was mostly destroyed far out at sea; but that, owing, perhaps, to some westerly change of the wind, or to the "survival of the fittest," or in other words of the strongest, a few straggling detachments arrived here to claim British protection.

There has lately been mentioned a very remarkable instance of the very lofty flight of migratory locusts in (I believe) India, by Lieut. Herschel. That gentleman was examining the sun with a telescope, and was amazed to see the passage of an immense number of minute bodies across the disc of that luminary, and which he at first mistook for aërolites. On altering, however, the focus of the instrument, so as to bring into view a distant cloud, he found that these moving bodies were locusts, in the act of migrating.

As further illustration of the immense height at which flight is sustained by some living beings, I may mention a curious fact that presented itself some years ago to two of my sons. They were engaged one afternoon in examining the spots on the sun, having for that purpose thrown the image upon a screen, when they observed, to their amusement, a bird fly slowly across the disc, moving its wings by distinct and regular flaps, after the mode common to long-winged birds. The passage across the face of the sun occupied, as nearly as they could guess, about a second and a half of time; from which circumstance, and from the distinctness of the figure, it may be inferred that the height from the earth must have been immense.

It is strange that we have acquired so little actual knowledge of the migrations of animals by means of flight. We see swallows and other birds congregating before their departure, but their actual migration is rarely, or never, witnessed by any one. In the same manner, insects of migratory habits, may, perhaps, sometimes seek a very elevated stratum of air in which to wing their way to "pastures new," and they may thus be carried above intervening clouds to great distances over the ocean, until exhaustion brings them down as food for fishes.

Kirby and Spence mention the destruction of enormous flights of locusts by drowning off the coasts of Africa, where the dead bodies have been washed up in such quantities as to form banks upon the shores several feet in depth. They also state that, on one occasion, a flight of locusts surrounded a ship when 200 miles from the Canary Isles, and that these insects showed no sign of exhaustion.

The first occurrence of *Acridium peregrinum* in this extreme western part of Europe appears to me to be a noteworthy fact; and I crave a little space in your Magazine to record it, for the benefit of future chroniclers. *P. migratoria* has frequently been captured in this neighbourhood, but we have had no means of ascertaining whether it has been bred in the country, or has reached us by immigration. There can, however, be no doubt but that *A. peregrinum* reached us last autumn by actual flight, and by a route probably of many hundreds of miles in length.

Burton-on-Trent, *May*, 1870.

DESCRIPTIONS OF FIVE NEW SPECIES OF DIURNAL *LEPIDOPTERA* FROM CHONTALES, NICARAGUA, AND OF ONE FROM MINAS GERAES.

BY W. C. HEWITSON, F.L.S.

NECYRIA BELTIANA, *n. s.*

Upper-side. Male; blue-black, crossed from the costal margin beyond the middle to the anal angle by a curved band of green-blue, divided by the nervures into spots as it approaches the anal angle, where it becomes narrow, and intersected between the nervures by lines of white; the fringe at the apex (which is pointed) and at the anal angle white. Posterior wing with a broad band of green-blue on the outer margin, divided by the nervures into pyramidal spots, each of which is traversed longitudinally by a line of white; the margin black; the fringe white.

Under-side as above, except that the anterior wing has the band much broader and greener; that the costal margin from the base to the middle is blue; that there are two spots in the cell and one at the end of the cell also blue, and that there is a scarlet spot on the inner margin before the middle; that the posterior wing has three blue spots near the base and one at the end of the cell; and that the blue of the outer margin is broader.

Female like the male, except that it has the wings broader, the spots of the band of the anterior wing more distinct, hastate in form, and whiter, and that it has a scarlet spot in the cell on the under-side of the anterior wing.

Exp. 2 inches.

I have given myself the pleasure of naming this very distinct species after Mr. Belt, to whom I am indebted for the five species now described.

In describing some new species in the March No. of this Magazine, I mentioned that Mr. Belt had had the good fortune to send six species (two of which were new) of the rare genus *Symmachia*. He has now sent another, a beautiful new species, and has also been very successful in taking several species of the rare genus *Anteros*, and amongst them *A. Chrysoprasta* of Bates. He sends home his own collection (to avoid the damp of Nicaragua) of 85 species, which, though unique with him, are nearly all familiar to us from parts of South America. There is a *Leptalis* amongst them which, though small, seems to me to be the female of *L. Cordillera* of Felder.

Symmachia Cleonyma, *n. s.*

Upper-side. Male; dark brown, the margins of the thorax and the anal segments of the abdomen scarlet. Anterior wing marked chiefly below the middle by 12 or 13 scarlet spots; two spots near the base, and one (minute) near the middle of the costal margin white, two sub-marginal bands of orange spots. Posterior wing scarlet, with all the margins broadly brown, the outer margin dentated inwardly, two linear spots of orange at the anal angle.

Under-side. Anterior wing as above, except that all the spots and the inner margin are white. Posterior wing white, crowded with black spots and bands: a sub-marginal series of black spots with white hastate spots above them.

Exp. 1⅒ inch.

Aricoris Cleomedes, *n. s.*

Upper-side. Male; orange, anterior wing with the costal and outer margin and apex very broadly dark brown, marked by three sub-apical white spots. Posterior wing with the costal and outer margin broadly dark brown, the costal margin where the wings meet white.

Under-side as above, except that it is pale yellow; that the anterior wing has some sub-marginal white spots below and in a line with the apical spots described above; and that the posterior wing has one or more white spots at the apex and anal angle.

Female like the male, except that it is orange-yellow; that the margins of the anterior wing are narrower; and that the costal margin of the posterior wing is without the white or its brown border.

Exp. $1\frac{2}{10}$ inch.

Unlike any other species.

LEMONIAS LASTHENES, *n. s.*

Upper-side. Male; anterior wing grey-blue, rufous from the median nervure to the inner margin, three lines of black in the cell and a fourth beyond it, three lines below these, a broad sub-marginal band, the outer margin and the nervures between them black. Posterior wing rufous, with three bands of black in and one beyond the cell, and some shorter bands above and below these: a large spot of orange on the outer margin near the anal angle.

Under-side. Both wings grey-blue, with the bands as above, but narrower. Anterior wing with a transverse band beyond the middle, a sub-marginal band of spots, and the outer margin brown. Posterior wing with two spots at the apex and anal angle, and one or two smaller spots between them, all crowned with white.

Exp. $1\frac{4}{10}$-inch.

Most nearly allied to *L. Thara.*

EMESIS LACRINES, *n. s.*

Upper-side. Male; bright red. Both wings with a sub-marginal series of black spots. Anterior wing with three black lines in and one at the end of the cell, four similar lines below these, the outer line broken by the first median nervule, a large oblong orange spot beyond the middle divided into five parts by the nervures, and bordered inwardly with black. Posterior wing with three black lines in and one at the end of the cell, with some very indistinct lines between them and the inner margin; crossed near the middle from the costal margin to the second branch of the median nervure by a linear band of black; crossed again beyond this by an indistinct band of brown.

Under-side as above, except that it is paler.

Exp. $1\frac{9}{10}$-inch.

The most beautiful species of this genus.

NYMPHIDIUM ETHELINDA, *n. s.*

Upper-side. Male; dark rufous-brown. Posterior wing with the base brown; white from the end of the discoidal cell to the outer margin; marked at the apex by a band of black.

Under-side. Anterior wing grey-white, with the base, a band beyond the middle, and the outer margin, brown; two spots in the cell, two below these, and one at the end of the cell dark brown, bordered with white. Posterior wing as above, except that it is grey-white at the base clouded with brown, and marked by five brown spots, that the apical band is divided into three distinct spots, and that there is a black spot near the anal angle.

Female white. Anterior wing with the base (which is marked by two or three brown spots bordered with white) and the costal and outer margins broadly brown. Posterior wing with a series of seven lunular spots of dark brown on the outer margin, which is black.

Under-side as above, except that there is no brown at the base of the costal margin, and that there is a sub-marginal series of brown spots, bordered with white, on the anterior wing.

Exp. ♂, $1\frac{9}{10}$-inch; ♀, $2\frac{2}{10}$-inch.

Hab. Minas Geraes.

Mr. Rogers and his son, who are working hard in Minas Geraes, have sent the very distinct species now described, together with some new *Erycinidæ*, and many most interesting *Hesperidæ*, amongst which I expect to find that about twenty are new. They have succeeded in taking the female of *Morpho Æga*, of which I do not remember to have seen a specimen in any of the European collections, and also a *Papilio* which is new, unless it should prove to be the female of *P. Mentor*.

All the species above described are in my own collection.

Oatlands, Weybridge,
18*th April,* 1870.

DESCRIPTIONS OF NEW SPECIES, &c., OF *COLEOPTERA* FROM BRITAIN.

BY E. C. RYE.

HOMALOTA SHARPI, *n. s.*

Nigra, nitida, pedibus fuscescenti-testaceis, elytris castaneo-fuscescentibus; thorace transverso, æquali, abdomine suprà apicem versùs fortiter vageque punctato.

Sexûs differentia latet. *Long. vix* 1 *lin.*

Apparently allied to the Canarian *H. vagepunctata* of Wollaston, but with a broad head, unicolorous dark antennæ, finer and closer pubescence, &c. It bears a very slight superficial resemblance to *H. muscorum*, Bris. (*piсipes*, Wat. Cat.), but must be placed with *H. pulchra*, *clientula*, &c., in group xxii of Dr. Sharp's revision.

Antennæ entirely black, longer and more slender than in *H. muscorum*, being scarcely perceptibly thickened towards the apex, and having the apical joint acuminate and decidedly as long as the two preceding. Head broad, but little narrower than the extreme width of the thorax, black, very shining, with somewhat indistinct and shallow but large and wide punctures. Thorax more than half as broad again as long, convex, unchannelled; the anterior angles somewhat evident, though rounded; pitchy-black, very shining, with exceedingly fine and somewhat remote punctures, interspersed with which are others of the same character as those on the head. Elytra about a third longer than the thorax, chestnut-brown, broadly darkened at the base, sides and scutellum, duller than the rest of the insect, being more closely though still coarsely and shallowly punctured. Abdomen black, shining, moderately narrowed towards the apex, strongly and widely punctured, especially towards the apex. Legs yellowish, slightly infuscated. The whole insect is clothed with short and rather depressed yellowish pubescence, and has moderately long lateral dark setæ.

I have long had a single specimen of this somewhat conspicuous though small species (from the London district) set aside as undescribed in my collection, and now dedicate it to Dr. Sharp, as a trifling acknowledgment of his labours in elucidating the British *Homalotæ*. It has been examined by that gentleman, and also subsequently by Dr. Kraatz; and is considered by both to be a good species, and apparently undescribed.

STENUS OSCILLATOR, *n. s.*

Sub-depressus, plumbeo-niger, nitidulus, crebre minus profunde punctatus; antennis palpisque testaceis, his apice, illis basi apiceque fuscis; pedibus nigro-piceis.

Long. 1⅔ *lin.*

With the palpi and antennæ coloured as in *S. paganus*, this insect has the size, build and dark legs of *S. latifrons*, differing from both those species (to which it is very closely allied, having bi-lobed tarsi, an un-margined abdomen, and un-spotted elytra) in its less strong and not quite so close punctuation, more shining appearance, more decided frontal elevation, and the somewhat less sudden and slighter contraction of its thorax behind. Compared with *S. latifrons*, moreover, its antennæ are thinner and longer.

In Dr. Power's collection. I have sent it to M. Fauvel (who returns it as most probably a new species), and to Dr. Kraatz, who appears not to know it.

TROGOPHLŒUS SPINICOLLIS, *n. s.*

Niger, nitidus, antennarum articulo primo, thorace, elytris pedibusque rufo-piceis; thorace transverso, vix cordato, postice angustato necnon utrinque impresso, angulis anticis in spinam productis; elytris latis hoc duplo longioribus, grosse fere rugulose punctatis. *Long.* 1¼ *lin.*

This curious insect, at once recognisable by the spined anterior angles of its prothorax, may possibly be the type of a genus not at present characterized; but the decidedly subulate apical joint of its maxillary palpi and its concealed scutellum point to *Trogophlœus* in preference to *Ancyrophorus*, to which genus Dr. Kraatz (who considers it as a decidedly new species) thinks it should be referred. It is allied to *T. scrobiculatus*, Er. (*arcuatus*, Wat. Cat.), and *riparius*, Boisd., but has shorter and stouter antennæ, a greater depth between the back of the eye and hinder margin of the head, a smaller and scarcely cordate thorax, of which the punctuation is very coarse and the dorso-lateral depressions are less conspicuous and not so complicated, and wider, longer, and much more coarsely punctured elytra.

Antennæ rather short and stout, being decidedly thickened towards the apex, and having the sub-apical joints almost transverse; black, except the basal joint, which is pitchy-red. Head black, strongly punctured, with two lateral depressions below the vertex, meeting towards the front, and with the eyes not occupying so much lateral space as is usual in *Trogophlœus*. Thorax pitchy-red, shining, straight in front, with the anterior angles produced into a short but evident lateral spine; contracted behind below the upper third; coarsely punctured, with a broad shallow depression on each side behind, leaving a central longitudinal space, a ridge along the posterior margin, and a small elevation on each side of the central space about the upper third smooth. Elytra pitchy-red, shining, double as broad and rather more than twice as long as the thorax, with a considerable scutellar depression and the trace of an abbreviated oblique depression between it and the shoulder; very coarsely and almost rugulosely punctured. Abdomen black, shining, very delicately and at the apex widely punctured. Legs pitchy-red.

Taken by Mr. J. Kidson Taylor, of Manchester, under rejectamenta of the river Mersey, on 9th August, 1868.

ANISOTOMA SIMILATA, *n. s.*

Ovato-sub-globosa, ferruginea, nitida, prothorace lævigato, antennis basi gracilibus, elytris striato-punctatis, punctis leviter impressis, striâ a suturâ quartâ pone basim leviter arcuatâ. *Long.* 1 *lin.*

I should have hesitated in considering this (taken by myself at Shirley) as other than an extreme form of *A. badia*, if Dr. Kraatz had not returned it to me as certainly distinct from that insect, and a good species. It is closely allied to *A. badia*, from which it differs in its rather larger size and lighter color, the more slender basal joints of its antennæ, and its proportionally rather longer elytra, of which the punctures are, though regular and well defined, much more delicate, the fourth stria from the suture being, moreover, slightly waved about the upper third.

Xantholinus distans, Muls.; Ktz., Ins. Deutschl., ii, 639. Allied to *X. tricolor*, Fab., but differing from that species, amongst other characters, in being smaller, with the thorax reddish *behind* (not *in front*, as in typical *tricolor*) and having finer and less numerous punctures in the two dorsal longitudinal striæ. I have two specimens from Rannoch, one of which has been named for me by Dr. Kraatz. A third example agrees in size and coloration with these, but has the thoracic punctuation of type *tricolor* (which also occurred at Rannoch), so that Mulsant and Rey's original reference of *distans* as a var. of *tricolor* may possibly be correct. *X. distans* somewhat resembles very light specimens of *X. linearis*, as Kraatz remarks; indeed, the same example that the latter authority named *distans* for me has also been named *linearis* by M. Fauvel, from which, however, it seems to differ structurally.

Colon denticulatum, Ktz., Stett. Ent. Zeit., 1850, 189; Tournier, Soc. Ent. Fr., 4th ser. iii, 151. Corroborated as British for me by Dr. Kraatz himself, who states it to be universally exceedingly rare. I have a ♂ from Hythe, and there is a ♀ in Dr. Sharp's collection (also, I think, in Dr. Power's cabinet). It is somewhat allied to *C. appendiculatum*, but is smaller, more convex, and with the posterior femora of the ♂ armed only with a small pointed straight tooth beneath.

I have recently sent a series of the British species of *Colon* to Dr. Kraatz for revision, and have to acknowledge the kind assistance of Drs. Sharp and Power and Mr. Crotch. The above is the only species new to our list among them, the others being *viennense*, Hbst., *Zebei*, Kr., *dentipes* and *appendiculatum*, Sahl., *angulare*, Er., *rufescens*, Ktz., *serripes*, Sahl., *brunneum*, Latr., and *latum*, Ktz.,—all of which are corroborated by Dr. Kraatz. *C. puncticolle*, Ktz., and *calcaratum*, Er., are not known to me as British: they are in our list on Mr. Haliday's authority, I believe.

Cryptophagus validus, Ktz., Stett. Ent. Zeit., 1856, 240. This is the insect named *fumatus* by M. Brisout, and brought forward by me on that gentleman's authority in Vol. vi, p. 257 of this Magazine. Dr. Kraatz himself has named it for me: he compares it to *fumatus*, from which it is evidently distinct. I may observe that Dr. Kraatz returns our *C. ruficornis* as utterly unknown to him.

10, Lower Park Fields, Putney, S.W., *May*, 1870.

Note on Bledius fuscipes, Rye.—On 15th April last, I captured a few specimens of this insect, at Crosby, near Liverpool. At first sight it resembles *B. subterraneus*, which may account for my not taking more specimens at the time. However, on a subsequent occasion, I took a considerable number of this species. They occurred in a sandy *freshwater* marsh, surrounded by sand-hills of tolerable elevation, especially on the side next the sea. I also found the insect in another marsh, further (about quarter of a mile) inland: here they were, perhaps, more abundant, and were unaccompanied by *B. arenarius*, which was very common in the marsh nearer the sea.

They were generally found in pairs; one, probably ♀, being at the bottom of a down-cast burrow about one and a half inches deep, and the other in a short transverse burrow, close to the mouth.

The burrows were easily detected by the small mound of dry sand raised by the insect in the process of excavation, and were exactly like the sand-heaps formed by *B. bicornis*, only very much smaller in size, and differing completely from the sinuous galleries of either *B. arenarius* or *B. subterraneus*, which are invariably close to the surface.

If *Bledius fuscipes* be a desideratum to any of the readers of the Ent. Mon. Mag., I shall be happy to forward specimens, on receipt of box and return postage.—J. Kidson Taylor, 3, Shakespeare Terrace, Old Trafford, Manchester, *4th May*, 1870.

On the synonymy of certain Coptoderides from the Amazons.—In the 'Compte-rendu' (No. 46) of the Soc. Ent. de Belgique for 5 March, 1870, is a communication from M. Putzeys, revising, on the authority of Mr. H. W. Bates, the synonymy of certain *Coptoderides* described by M. le baron de Chaudoir in vol. xii, Ann. Soc. Ent. Belg., and which unfortunately clash with Mr. Bates' species described shortly before in this Magazine. The following corrections are noted by M. Putzeys: Gen. *Ferus*, Chaud.,=*Phlæotherates*, B.; *Coptodera affinis*, Ch.,=*versicolor*, B.; *C. Batesi*, Ch.,=*megalops*, B.; *C. spinipennis*, B.,=*acutipennis*, Buq.; *C. æneocuprea*, Ch.,=*chalcites*, B.; *C. rotundipennis*, Ch.,=*relucens*, B.; *C. chalcoptera*, Ch.,=*æneorufa*, B.; *C. debilis*, B.,=*nitidula*, Buq.; *C. amazonica*, Ch.,=*cupreotincta*, B.; *C. misella*, Ch.,=*lineolata*, B.; *C. discoguttata*, Ch.,=*cyanella*, B.; *Lelis viridipennis*, Ch.,=*C. rutila*, B.; *L. bifasciata*, Ch.,=*C. polygona*, B.; *Stenoglossa nigrosignata*, Ch.,=*fulminans*, B.; *S. corticalis*, Ch.,=*dromioides*, B.; *S. atriceps*, B.,=*transversa*, Reiche; *S. pallida*, B.,=*nigrostriata*, Reiche.—E. C. Rye, Putney.

Coleoptera in Morayshire.—Having revisited this district in May, 1868, I took additional notes of the species that came in my way. The most valued capture after *Magdalinus duplicatus* and *Cryptohypnus pulchellus*, both recorded in Vol. 5 of the Magazine, was the tiny *Brachonyx indigena*. It has been said that Turner obtained this insect in Scotland upon birches: my experience, however, coincides with that of continental collectors, who find it, according to Lacordaire and others, on pines in the boreal regions of Europe, and in some of the mountainous districts of Germany. Only two specimens were obtained, notwithstanding repeated sweepings and beatings on several occasions all around "the lucky spot." These examples differ somewhat in colour, the one being uniformly testaceous, while the other has the thorax of a dark brown (and is the smaller of the two).

Along the landward edge of the Culbin Sands (by the natives pronounced Coobin) there are some pools of water, on the damp borders of which, accompanied by *Bledius subterraneus*, **Dyschirius impunctipennis* was not uncommon. In rabbit burrows *Leistus rufescens* appeared, and in the neighbouring fir plantations, as well as in some other localities, *Pissodes notatus* was taken sparingly, *P. pini* being everywhere abundant.

In the woods of Darnaway, I met with *Gymnusa brevicollis*, *Philonthus cinerascens*, and *P. corvinus*, in the half-submerged moss by the side of pools, where also *Bembidium doris* was not uncommon, along with *Pachyrhinus canaliculatus*. I was surprised to find associated with these marsh-lovers several specimens of *Trachyphlœus scaber*, which I had always regarded as partial to dry places. The circumstances attending their capture did not seem to favour the idea of their having been blown into the water. Two or three specimens of *Berosus luridus*, found in Scotland before only by Mr. Little, I believe, in Dumfries-shire, and one of *Hyperaspis reppensis* were more unexpected captures than their companions *Chætarthria* and *Cyclonotum* in the same place. Here, also, in broom and furze stumps, were taken *Phlœophthorus rhododactylus* and *Hylastes trifolii*. In the Elgin Museum, which owes so much in all the natural history departments to the enthusiasum and well-directed skill of Dr. Gordon, of Birnie, I observed a specimen of *Saperda Carcharias* from this locality.

In the grounds about Altyre I found for the first time **Homalota cinnamomea*. As in England, it is a pensioner of the Goat-moth larva. *H. vicina*, *Soronia punctatissima* and *grisea* sipped in boon companionship the vinous juice that flowed from the wounded birches. *Trichopteryx lata* was everywhere under fallen leaves. *T. grandicollis* and *Ptenidium pusillum* occasionally appeared in the net, and **Pteryx suturalis* was rather plentiful under the bark of a fallen pine. From the decaying twigs of fir-trees also, here and elsewhere, **Tomicus micrographus* was frequently beaten.

The Cluny Hills and woods of Sanquhar on the outskirts of Forres afforded several additional species, such as *Athous niger* and *vittatus* on oaks, *Corymbites impressus* on pines. *C. cupreus*, *Sericosomus brunneus*, *Campylus linearis*, *Limonius cylindricus*, were obtained by sweeping the herbage. *Helodes marginata*, *Podabrus alpinus*, *Telephorus paludosus* and *elongatus*, *Malthinus flaveolus* and **frontalis* (on firs), *Malthodes biguttatus* and *flavoguttatus*, *Necrobia violacea*, *Ernobium molle* and *Cis bidentatus* were the most note-worthy of the *Malacodermata*. *Rhynchites germanicus*, *nanus*, *megacephalus* and *betulæ* all occurred on birch. *Epuræa æstiva*, *florea*, *melanocephala*, *obsoleta*, *pusilla* and **neglecta* (one specimen), *Omosita depressa* and *colon*, were found in their usual haunts. *Paramecosoma* occurred sparingly by the border of streams, though not uncommon on Tweed-side. *Ips 4-pustulatus* and *ferrugineus*, *Rhizophagus depressus*, *ferrugineus* and *dispar* were all found on fir logs; but the last named is not confined to them. *Megacœtes ruber*, *Ceuthorhynchus marginatus* (single specimens, and not common seemingly in any part of Scotland), *Alophus triguttatus* and *Miccotrogus picirostris* were among the suburban weevils. Near the Braes of Moray, **Apion genistæ* was very scarce on *Genista anglica*, while *A. ulicis* abounded as usual on the common furze.

On the banks of the Findhorn, *Colon brunneum* was picked up, and *Tachypus pallipes*, of which I formerly took a single example, re-appeared in some numbers.

It seems to differ in its ways from *B. paludosum*. In the wide gravelly or sandy bed of the river, of which a great part is dry in summer, there are little green oases formed by tufts of milfoil, common birdsfoot trefoil, &c., under which the creature, hides, and is only occasionally seen running over the intervening spaces; whereas *paludosum* is often found trooping over the damp sand, and is not averse even to a little mud. By the river, also, **Amara lucida* was taken, once and again.

Without specifying localities, and omitting many of commoner occurrence, I noted the following: *Calathus micropterus* and *rotundicollis*, *Anchomenus viduus* and *gracilis*, *Bradycellus collaris* and *similis*. *Bembidium anglicanum*, *concinnum*, *pallidipenne* and *prasinum*, *Helophorus arvernicus*, *Philhydrus melanocephalus*, *Liodes glabra* and *castanea*, *Priobium castaneum*, *Octotemnus glabriculus*, *Anthonomus ulmi*, *Otiorhynchus monticola*, *Donacia sericea* and *comari*, the latter of which seems very much more common in Scotland than the former, *Chrysomela varians* on *Hypericum perforatum* (frequents also *H. quadrangulum*), *Gonioctena pallida*, on hazel, *Phædon betulæ* (first taken in Berwickshire only four years ago), *Lyperus flavipes*, *Crepidodera Modeeri*, *Psylliodes cupronitens*, *Coccinella* 18-*guttata*, *oblongo-guttata* and *ocellata*, *Exochomus* 4-*pustulatus*. *Homalota cambrica* (*velox*), *subtilissima* (both by sides of streams, the former running over the surface, the latter hiding under the shingle, accompanied by *Thinobius longipennis*), *elongatula*, *volans*, *immersa*, *analis*, *brunnea*, *subænea*, *succicola*, *fungicola*, *subterranea*, *sericea*, *lævana*, *cinnamoptera*, *aterrima*, *orbata*, and *clientula*. These have enjoyed the benefit of Dr. Sharp's examination. *Encephalus complicans*, *Gyrophæna gentilis* and *nana* in *Agaricus gambosus*. *Tachinus flavipes*, **Mycetoporus lucidus* (taken by me also in Berwickshire, many years ago), *Quedius lateralis*, *umbrinus*, *maurorufus*, and *fulvicollis*, *Staphylinus nebulosus*, *Philonthus decorus*, *Lathrobium quadratum*, *Anthophagus testaceus*, *Geodromicus nigrita*, *Lesteva pubescens* and *punctata*.

Pocadius ferrugineus, *Sinodendron cylindricum*, *Pogonocherus hispidus* and *Byrrhus dorsalis* not found by myself, were kindly presented to me by Mr. Norman, who has undertaken the investigation of the *Lepidoptera* of the province.

The species with an asterisk prefixed are now, I believe, for the first time recorded as Scottish.—ROBT. HISLOP, Blair Bank, Falkirk, *March*, 1870.

Captures of Coleoptera near Lewisham.—I have much pleasure in recording the capture of a few more examples of *Calodera rubens*, Er., in the same locality as those mentioned by Mr. Rye when introducing the species as British. I have also taken in the same neighbourhood the following species (with others), already known to occur at Lee:—*Pachyrinus* 4-*nodosus*, *Stenus solutus* and *pallipes*, *Lathrobium longulum*, *Tachyporus tersus* (of Waterh. Cat.), *Euplectus ambiguus*, *Apion difforme*, *Homalota exilis* (*major* form rarely, *minor* form commonly) and *orphana*, *Hygronoma*, *Anchomenus gracilis*, *Oxypoda lentula*, *Bryaxis impressa*, *Bythinus Curtisii*, *Psammœchus* and *Ocyusa maura*.—G. C. CHAMPION, 274, Walworth Road, London, S., *March*, 1870.

Note on the recent abundance of Coccinellæ.—Norfolk shared the advantages derived from the timely visit of immense flights of Lady-birds, and the plague of *Aphides*, from which vegetation suffered so severely, rapidly disappeared. There has been great discussion as to how far we are indebted to immigration for these friendly visitors, and from whence they come; of course opinions differ greatly, but I am inclined to believe we need not revert to the Continent to account for their presence. In my own garden there have been immense numbers, but the number of the larvæ was also very great. Their onward movement in search of fresh supplies of food would, I think, account for their congregating on the shore, which has led to the impression that they had just arrived in this country; but their flight, though rapid, is not, I believe, sufficiently sustained to carry them far over the sea, into which they would drop exhausted and perish. In support of this view I will mention that a yacht, belonging to Mr. Cresswell, of Lynn, sailing off Hunstanton, passed through a mass of dead lady-birds about 10 feet broad, accumulated on the surface of the water for two or three miles. This occurred in the Wash, about nine miles from the Norfolk, and thirteen miles from the Lincolnshire shore; the wind was very light from off the Norfolk shore, and the exact locality the entrance to the channel called the "Bull Dogs." Mr. Cresswell thus accounts for their presence:—At low water there are uncovered sands, with pools and channels between them, and he presumes that the mass of dead Lady-birds were drowned by the rising water and brought by the current into the vast accumulation the yacht passed through. There is very little doubt they left the Norfolk shore, and, alighting on the first uncovered spot they came to, were saved from dropping exhausted into the sea, only to be drowned by the rising tide. But, had they been able to return to the Norfolk, or proceed to the Lincolnshire coast, any one witnessing this would have been impressed with the belief that they came from the Continent.--T. Southwell (extracted from the "Transactions of the Norfolk and Norwich Naturalists' Society").

Description of the larva of Scoparia muralis.—On the 20th of May, 1869, Dr. F. Buchanan White kindly sent me a supply of larvæ of this species, together with some of their native food-plants, *Bryum capillare* and *Hypnum cupressiforme*, on which they continued to feed till about the end of the month, constructing, by means of slight silken threads, little tunnels for themselves through the moss or the soil at its roots; and when disturbed, they could show considerable activity.

The full-grown larva is five-eighths of an inch in length, very slender, cylindrical, and tapering a little behind, the head rounded, and a trifling degree smaller than the second segment.

In colour it is either a dingy ochreous-brown, greyish-brown, or a turbid violet-brown, darkest on the back, becoming gradually paler towards the ventral surface; a faint indication of the dorsal vessel is visible as a rather darker pulsating stripe, which commences on the second segment, conspicuously dividing the dark brown plate there into two parts; on the other segments are the ordinary series of tubercular spots, horny, dark brown, and very large in proportion, especially on the back, and shining like the head, thoracic plate, and the anal paler plate; on the dorsal region of each segment the anterior pair of these spots are circular, and the posterior pair transversely oval, and every one is furnished with a fine brown hair.

No less than fourteen of the moths appeared between June 27th and July 8th. —Wm. Buckler, Emsworth, *January*, 1870.

Description of the larva of Pempelia formosa.—For examples of this larva I am indebted to Mr. F. Franks and Mr. W. Machin, from whom I received them on the 21st of July and the 19th of August, 1868.

Their usual food appeared to be the leaves of elm, though, in confinement, I found they would also eat birch; and, when a fresh supply was given to them, their first proceeding, before satisfying their appetite, was either to spin two leaves together or to turn down the corner of a leaf with a few threads: under this shelter they began to feed; and in a day or two a considerable number of threads would be spun, agglutinating the leaves together in various directions. The earliest were full fed by August 20th, and the latest by the the 15th September.

The full-grown larva is about five-eighths of an inch or little more in length, tolerably cylindrical, and, when looked at from above, of nearly uniform bulk, but, viewed sideways, the three hinder segments are seen to taper beneath towards the anal extremity; all the segments are plump, and rather deeply divided; the head is rounded at the sides, and a little flattened in front.

The ground colour is a deep olive-green, much freckled with darker green; the usual dorsal and sub-dorsal stripes are of this colour, each of them being enclosed within two rather sinuous fine lines of yellowish-olive; another such line runs between the sub-dorsal and the spiracles; the spiracles are whitish, outlined with black, and immediately beneath them is a whitish-green line, which is followed by a similar one just above the legs, so that altogether there are no less than twelve of these pale lines on the back and sides; the ventral surface is dull green: the head is of the freckled ground colour, the mouth blackish, with the papillæ whitish; the second segment has a shining plate on which are faintly seen the colours and lines of the back; on each side of the third segment in the sub-dorsal region is a conspicuous transverse oval white spot, bearing a black dot within its lower margin.

The tubercular dots are blackish, each emitting a rather long greenish hair; though amongst these larvæ were some with whitish-green dots, and two that varied in the ground colour, being of a bluer green than the others above, and whitish-green beneath.

The moths appeared from July 12th to 17th, 1869.—Id.

Description of the larva af Eupithecia irriguata, Hüb.—Full grown larva 18-20 millimétres in length, very slender, almost equally thick throughout, but slightly thinner towards the head. Body finely and transversely ribbed; sutures of segments little developed. Ground colour in the young larva, citron-yellow, afterwards yellowish-green, on the back sometimes bluish-green. Head moderately large, brown, without markings; front-legs yellowish brown; other legs, and anal pro-legs, wine-red, with pale margins. On the back, excepting the two first segments, are double red spots in the form of two trapeziums united at their smallest sides, yet with the corners somewhat rounded, so that the spot assumes a biscuit shape, with the narrowest part corresponding with the incision of the segment—towards the anal segments these dorsal markings fadé away, whilst on the anterior segments they are smaller and more compressed. Anal flap reddish-brown, with pale margins, confluent with the last dorsal spot. Dorsal line only visible on those first segments that are streaked longitudinally with yellow and red. Sub-dorsal red, only indicated on the last third of each segment, seldom appearing as a continuous red line, and often altogether wanting. The space between the sub-dorsal lines and the dorsal spots forms a pale yellow surrounding of the dorsal marks. A defined lateral line is not evident, but there are slight swellings along the side angles. On the last fourth of each segment there is a reddish brown streak under the side angles. Segmental divisions yellow, in some examples rosy on the belly. This latter is of the ground colour, and shews sometimes a fine white middle-line. Before the change the larva becomes dirty red, but does not appear to vary otherwise. In habit it is allied to *obrutaria*, H.-S. In repose it sits stretched out, somewhat curved, and draws the anterior segments together. It was full-grown here, in 1869, from the end of May up to the middle of June, on oaks, seldom on beeches, at the same time as, and also later than, *E. abbreviata*, and was not rare on the margins of woods, feeding on the leaves of these trees. For pupation it crawls under bark and moss, and changes there to a slender, dark-brown, thick-skinned pupa, sometimes with olive-green wing-cases. The moth appeared in the spring of the following year. — C. Dietze, of Frankfort-on-Maine (in the "Stettiner Entomol. Zeitung," 1870, p. 336).

Butalis incongruella to be henceforth called Amphisbatis incongruella.—In the third part of the Stettiner Entomologische Zeitung for 1870, is a paper by Professor Zeller, with some notice of his Lepidopterological observations in 1869, and in a note in this paper (p. 304), that illustrious Entomologist proposes the generic name *Amphisbatis* for the singular *Butalis incongruella.*

In the Entomologist's Weekly Intelligencer, Vol. viii, p. 194, we read of this insect, "The case of this larva is perfectly unique, and the larva itself is quite as "singular; the perfect insect was so discordant from everything else that we gave "it the specific name of *incongruella*, and no doubt, eventually, a new generic name "will have to be created for it. It is important to bear in mind that the specific "name was given to the perfect insect long before the larva was discovered, and "that it had therefore no reference to any supposed incongruity in a larva being "found by an Entomologist whilst lunching."

This last sentence may, perhaps, need some explanation; it will be found at p. 113 of Vol. i of the Entomologist's Weekly Intelligencer. "An unusual number "of discoveries have been made, not whilst Entomologists were looking for insects, "but while they were resting discussing some luncheon: for one thing they then "remain stationary in one spot for some little time; but we fancy the main cause "of discoveries being then made is, that as they are not specially looking on any "plant, any moving thing that enters their field of view more readily attracts "attraction. Twice during the month of July has Professor Zeller, on such "occasions, found a case-bearing larva, which put its head out indifferently at "either end of its case, and was as lively and tremulous as a *Gelechia* larva."

For this larva, which so readily protrudes its head at either end of the case, Professor Zeller now proposes the generic name of *Amphisbatis*.

"*Amphisbatis*," remarks Professor Zeller, "differs from *Butalis*. 1°—in the "denticulate antennæ (in the ♂ pubescent-ciliate); 2°—in the second joint of the "palpi being hairy beneath; 3°—in the extremely short tongue; 4°—in the different "venation of the wings; and 5°—in the slender, extremely lively, case-bearing larva.

"This larva differs from all other case-bearers by its slenderness, its sharply "separated thoracic segments, its tremulous movements when crawling, and by "the readiness with which it turns round in its narrow case, and walks forward "from the open hinder end of its case. The slender, fusiform case, which is 5—6 "lines long, has a certain similarity to that of *Psyche pulla*, only that the pieces of "dry grass of which it is composed are fastened closely to one another and almost "smoothly, and that both ends of the case are quite free and open. From the "comparative smoothness of the case, the larva moves forward with it very easily, "but should it meet with any obstacle, it quickly turns round in its case, puts its "head out of the other end of its case, and walks away in another direction.

"I discovered a solitary larva at Glogau accidentally some years ago, on a "sandy place among lichens and various low plants, but as I could not make out on "what it fed, I could not rear it. Some years later, at Meseritz, I found out that "it fed on *Hieracium pilosella*, and in 1868, I found it when searching for it. On "the 18th of July, I sought for it in the dry fir plantation where I had occasionally "previously met with it, and as I lay on the ground searching amongst the tufts "of *Hieracium*, I met with four larvæ of different sizes, one of which was crawling "on a bit of *Hieracium* (I had generally only found them on the sand), and one "actually sticking in the heart of a plant of *Hieracium*. I fed them with *Hieracium* "in a flower pot till they were full grown. Stainton had told me that these larvæ "also fed on heather, which did not occur in the locality where I found my larvæ. "They spun their cases up firmly at one end like the larvæ of *Coleophora*. On the "1st January, 1869, I bred (in-doors) a female, so that I now knew the species "which this curious larva produced."

The perfect insect was first bred more than ten years ago by the late Herr Friedrich Hofmann, of Ratisbon, and since then, Mr. T. Wilkinson, of Scarborough, has obtained the larvæ from eggs deposited by the females of *incongruella;* but can we not all perfectly appreciate Professor Zeller's feelings of not being quite sure of the thing till he had seen it himself?—H. T. STAINTON, Mountsfield, Lewisham, *May 7th*, 1870.

Capture of Dicranura bicuspis, &c., at Leominster.—From various parts of the kingdom the complaint has reached me of the unusual scarcity of insects this spring. Such has not altogether been the case here, although several species have not occurred which are some seasons met with. The sallow-bloom was very productive; once again I had the pleasure of taking all the British species of the genus *Tæniocampa* on one night; as usual, *opima* was very rare, only one example was taken, *leucographa* and *gracilis* were very still when boxed, and reached home in fine condition; *miniosa* and *populeti*, on the contrary, soon damaged themselves. Hybernating moths were represented by three *X. petrificata*, three *semibrunnea*, one *H. croceago*, &c., &c.—the last-named species had never before been taken here.

Early in April the weather became very cold, and most insects disappeared; but, nevertheless, several species of *Eupithecia* occurred—*consignata*, *irriguata* (two, both unfortunately males), *indigata* (in numbers), *vulgata*, *dodoneata*, *abbre-*

viata, *pumilata*, and *coronata*. On the 7th of this month it became much warmer, and I spent a few hours in a neighbouring wood, and found *E. pendularia*, *P. petraria*, *N. pulveraria*, *L. lobulata*, *H. impluviata*, *P. tersata*, *C. silaceata*, *P. lacertula* and *falcula*, and other commoner species, already on the wing; but the great capture of the day was a splendid *Dicranura bicuspis* just emerged, sitting on a birch-trunk close to its pupa-case.

Is it generally known that the larvæ of *B. callunæ* in confinement will feed well on ivy? I proved this to be the case last winter.—F. HUTCHINSON, Grantsfield, Leominster, *13th May*, 1870.

Captures of larvæ of Lepidoptera at Southport.—On April 15th, I spent three or four hours at Southport, for the purpose of collecting larvæ. The most abundant species noticed (not excepting *Chelonia caja*) was *Orgyia fascelina*, of which I boxed about sixty from the dwarf sallows, and might have collected more had I required them. *Bombyx quercûs* was common, more especially on the south sand-hills, whilst *O. fascelina* appeared to be most numerous on the north, where I also took *B. rubi*, which species appeared to be rather scarce, however. On the south shore, I examined the willows for the purpose of ascertaining whether the larvæ of *Liparis salicis* had recommenced feeding. The bushes were only just bursting into leaf, and not a larva was to be seen, though the species occurs there in profusion. A search in the cracks of a decayed branch, and under the copings, &c., of a row of palings running close beside the willow bushes, however, discovered the small cocoons in numbers, which, on being broken open, revealed the little larvæ still inside. Doubtless, they would soon spread themselves all over the trees. I picked up a pupa of a *Smerinthus* (doubtless *ocellatus*) protruding from the sand under one of the willows.—GEO. T. PORRITT, Huddersfield, *April 23rd*, 1870.

Xylomyges conspicillaris in Worcestershire.—I have much pleasure in recording the capture of a fine male specimen of this insect at rest on an oak tree on May 7th, at Middleyards, Bransford Woods, this being the second time I have taken this rare species.—C. R. DOWARD, Pitmaston Road, St. John's, Worcester, *9th May*, 1870.

Early appearance of Acronycta aceris.—I noticed this species yesterday at rest on the trunk of a poplar tree in this dockyard. It seems rather early, especially as we have had such a continuance of cold easterly wind. Last year it was tolerably numerous, and I observed it in fine condition as late as the middle of August, at which time its full-fed larva was also to be found. *Cerura vinula* appeared for the first time yesterday.—G. F. MATHEW, Royal Naval Barracks, Sheerness, *12th May*, 1870.

Effect of the past winter upon hybernating larvæ.—With reference to what Mr Barrett said of *Lithosia stramineola* and *griseola* at p. 277 of Vol. vi, I am sorry to have to state that the bitter weather in February and March killed every larva I had; up to that time they had thriven remarkably well. I had a large number of both species, and was full of hope that I should have some decisive result to announce in due time: now I can only beg for more eggs. The past winter has done more harm to my hybernating larvæ than any I can remember.—J. HELLINS, Exeter, *May*, 1870.

Migration of white Butterflies.—I believe it was at the end of August, 1849, that one fine Sunday morning I returned from Havre by steamboat. The air was perfectly still, and all pleasant and smooth above and below. A splendid flight of wild swans crossed our track, making for some place in Calvados I should think. Their double line in wedge-like form, with the dropping of the leader every moment or so alternately down to the rear of each line like a pearl strung on a thread, was a sight never to be forgotten.

About mid-day, as we were all reading on deck, we seemed to plunge into a swarm, or snow shower, of common white butterflies, and so continued for nearly an hour. They literally covered us, circling round, and playing up and down the vessel, and I was struck with the fact, that they seemed to keep up with the vessel's speed—about eight knots an hour—as well as to flutter up and down.

Either they flew at our pace easily, or were assisted by the air carried along with us in the calm. Gradually they thinned off, and a breeze arising, disappeared. At the same time an exhausted pigeon fell on board, and a thunderstorm on the English coast coming in sight, closed our pleasant Sunday trip with a beauty of a different kind.

I noticed in the papers a few days afterwards, a paragraph about a large flight of white butterflies having crossed the Channel, and landed on the Hampshire coast, and thought I had seen them on the passage.—J. CROMPTON, Norwich, *April*, 1870.

Note on Cossus ligniperda.—It is well known that the larva of *Cossus ligniperda* ejects from its mouth a colourless (or nearly so) strong scented fluid. I had always supposed this to be of a watery nature; but, having soaked up some of it with blotting paper and set fire to it, it burned as though it were turpentine or oil. Should this fluid prove to be of an oily character, it would be a very interesting fact. I write this note to suggest further investigation, as I do not meet with *Cossus* with sufficient frequency to follow the matter up myself.—T. ALGERNON CHAPMAN, M.D., Abergavenny, *April*, 1870.

Notes on occasional second-broods in single-brooded Lepidoptera.—It is curious to note how some species of *Lepidoptera*, ordinarily single-brooded, are sometimes double-brooded. Thus, a second brood of *Liparis salicis* was met with in thousands on our sand-hills in Lancashire, in October, a few years since. The Ontario poplars on which the larvæ fed in August and September are now all dead through defoliation by them. Again, a friend here bred several broods of *Dasychira pudibunda* in one year, the last brood appearing on and about Christmas day, the eggs from which hatched early next spring. I possess *Orgyia gonostigma* given to me by Mr. Machin, who told me they were of a third-brood in one season; and I have examples of *Phragmatobia fuliginosa* bred from eggs impregnated only thirty-five days before the perfect insects appeared; the female that produced these again paired with the same male, and laid a second batch of eggs which I gave to a friend who bred insects therefrom, but much later in the season; the same moths paired a third time, and the female again laid a batch of eggs, these continued a long time without hatching, but did so before the winter set in, and produced moths the following season. The first batch of eggs were given by me to Mr. Edmondson, who fed the larvæ on lettuce; the second batch I gave to Mr. Alexander Cooke; and the third I kept myself. The two first lots were laid whilst we were on the sand hills, the third being deposited the day following. This is a well authenticated fact, showing how little we know of the Natural History of our favourites; and pointing to the possibility of observations being correct for some time and places, but not for all. *Leucophasia sinapis* is said to be double-drooded in France and the New Forest, the second brood being the form known as *dinensis;* but this form has never been know to occur in North Lancashire or Westmoreland, where *sinapis* is the most common white butterfly, but is never seen there after the early part of June.—C. S. Gregson, Stanley, Liverpool, *March*, 1870.

[No doubt exceptional second-broods are liable to occur occasionally in all single-brooded species; we possess examples of a second brood of *Arctia caja.* In the south of England we imagine *L. sinapis* to be universally double-brooded. The vagaries of Mr. Gregson's pair of *P. fuliginosa* as detailed above, are interesting; but the three batches of eggs undoubtedly were only portions of one, and would probably have been all deposited at once had the moths not been disturbed; the difference of treatment they would experience at the hands of three different collectors is quite enough to account for the discrepancies in the time of hatching. —Eds.]

On a singular instance of partial gynandromorphism in a Trichopterous insect.—During April my friend Mr. W. C. Boyd informed me that he had found *Brachycentrus subnubilus*, Curtis, in great abundance near Cheshunt, and, at my request, he captured a long series. Among them was one example which he thought to be hermaphrodite, and on examination, I find it combines the characters of both sexes, but in a very unequal manner. I may as well explain beforehand that in the family *Sericostomidæ* the palpi are remarkably different in the sexes. In *Brachycentrus* the maxillary palpi of the ♂ are short and thick, curved over the face, and 3-jointed; in the ♀ these organs are long and thin, geniculate, and 5-jointed. In the neuration of the wings in this genus are the following differences; in the fore-wing of the ♂ the seventh apical sector is simple, whereas it is furcate in the ♀: in the hind-wing there are two more apical forks in the ♀ than in the ♂. Now, in Mr. Boyd's example, both maxillary palpi are decidedly ♀, as is the left fore-wing, which measures 6 lines in length, the right only 5 lines, and with the ordinary neural differences. But in the appendices and in every other respect (including both hind-wings) the characters are as decidedly ♂.

I am not aware that a parallel instance has been recorded. It is the second case of gynandromorphism known to me as occurring in the *Trichoptera;* the other being a specimen of *Limnophilus striola* taken by Mr. B. Cooke, as recorded in the Proc. Ent. Soc., 3 ser., vol. v, p. xcix.—R. McLachlan, Lewisham, 3*rd May*, 1870.

Obituary.

We deeply regret to have to announce the death of Julius Lederer, of Vienna, —one of the most active and energetic Lepidopterologists Europe has produced.

He died on the 30th of April, at Vienna. During the winter he had not been in good health, but was not so unwell as to excite any apprehensions, and he left home on the 8th of April for a summer's collecting tour in the Balkan—but the cold at Widdin induced him to turn further south. When, however, he reached Rustschuck he became so unwell, that he decided to return home, and reached Vienna on the 16th of April, where rest and home comforts seemed to restore him; and he even talked of starting again for Asia Minor—but it was not to be: towards the end of the month he became more seriously ill, and died on the 30th, to the great regret of a large circle of Entomological friends.

Reviews.

A GUIDE TO THE STUDY OF INSECTS, and a treatise on those injurious and beneficial to Crops.—By A. S. PACKARD, Junr., M.D. Salem (Massachusetts), Naturalists' Book Agency; London, Trübner & Co., 8vo., 1868–9.

We seldom have had the pleasure of noticing a work of such sterling merit as this. Were we to compare it with previously published treatises of a similar nature, we should say it is a combination of Westwood's "Introduction" and Curtis's "Farm Insects," but a combination handled in such a manner as to convey to the reader little idea of either. While aiming at making it *popular*, the author has in no single instance lost sight of the scientific side of the question, and has produced a "Guide" which must henceforth be looked upon and quoted as an original and pains-taking elucidation of the subject. The book is a marvel of cheapness, and should serve as a model in its "getting-up," its paper and printing being good, and its multitude of wood-cuts and several full plates being generally well executed. It was originally published in parts (10 constituting the volume), and extends to 700 pages of large octavo. Naturally, the illustrations are for the most taken from American subjects; but the author has aimed at making the work a "Guide" for all entomologists, whatever may be their nationality,—has copiously extracted from European works wherever American materials, or insufficient knowledge, failed to convey an adequate idea,—and has given full explanations of the anatomy of insects, with instructions for their capture and preservation.

The arrangement is decidedly original, though based to some extent upon that of Leuckart and Agassiz. Including myriapods and spiders under the Class *Insecta*, Dr. Packard divides this into three orders, *Hexapoda*, *Arachnida*, and *Myriapoda*. From the *Hexapoda* (or true insects) he forms seven sub-orders in the following sequential arrangement—*Hymenoptera*, *Lepidoptera*, *Diptera* (including *Pulex* and *Braula)*, *Coleoptera* (including *Stylops)*, *Hemiptera* (including *Thrips*, the *Pediculi*, and *Mallophaga*), *Orthoptera* (including *Dermaptera*), and *Neuroptera*, this latter comprising the order in the Linnean sense, and including also the *Lepismidæ* and *Poduridæ*. This arrangement Dr. Packard considers to be a natural one, commencing with the most highly perfected, and ending with the most "degraded," forms." On a subject upon which there is so much allowance to be made for differences of opinion, we are not disposed to be very critical, yet there are some things we can scarcely pass over in silence. At page 108, after enumerating structural reasons why the *Hymenoptera* should head the series, our author adds — "Besides, as animals endowed with instincts and a kind of reason, differing perhaps only in degree from that of man, these insects outrank all other Articulates." Yet his plan forces him to the admission (pp. 586–587) that the *Termitidæ* are as fully endowed with reasoning faculties, adding that "Nature, constantly repeating the same idea, here leaps over whole groups of insects." But to Dr. Packard, as to all systematists, the *Neuroptera* generally have proved a stumbling-block, and we actually find the *Trichoptera* placed as the most "degraded" form (excepting *Podura*, &c.), notwithstanding their close affinity with the exalted *Lepidoptera*, an affinity which almost renders it questionable as to whether some Lepidopterous genera, *e. g.*, *Micropteryx*, *Nepticula*, &c., might not be grafted on to the *Trichoptera*, without much outraging either. To our mind, this arrangement is a striking example of the fallacy of any system, which, being linear, attempts also to be natural.

The importance of this work rendered it necessary to devote more space to its notice than is our custom; but the fact that 800 copies have been sold already, and that a new edition is in preparation, must outweigh anything we have said, or could say, in its favour.

TRANSACTIONS OF THE NORFOLK AND NORWICH NATURALISTS' SOCIETY, 1869–70. —Norwich, 1870.

We have before us the first part of Transactions published by this Society, and a very creditable beginning it is, extending to over 60 pages. Of course all branches of Natural History are represented, as they should be, and Entomology is very fairly advocated by (1), a discursive paper by Mr. Crowfoot, conveying many useful hints on the way the study should be conducted; (2), a notice by Mr. Barrett "on the larva of an unknown Lepidopterous insect found in the barley crops of 1868," remarking on the damage done to the grain by some small, and as yet undetermined larva; and (3), some pertinent remarks by Mr. Southwell on the unusual abundance of Lady-birds last season, an extract from which will be found in another part of our present number.

ENTOMOLOGICAL SOCIETY OF LONDON, *2nd May*, 1870. A. R. WALLACE, Esq., F.Z.S., President, in the Chair.

Mr. Higgins exhibited (for Mr. Hewitson) a collection of butterflies from Ecuador, collected by Manuel Villagomes, who was in the service of Mr. Buckley during his late expedition; Villagomes collected in a valley considerably to the south of the scene of labours of his former master. The collection consisted of 2000 specimens, and Mr. Hewitson described 22 new species.

Mr. F. Smith exhibited a Collection of Japanese *Hymenoptera*, sent by Mr. Lewis, of Nagasaki. Of the *Aculeata* there were 44 species, and of these about 20 appeared to be new. Taking it altogether, the collection was European in its facies and constitution.

Mr. McLachlan read "Descriptions of a new genus and four new species of *Calopterygidæ*, and a new genus and species of *Gomphidæ*." Among the former was a near ally of the brilliant *Chalcopteryx rutilans* (*C. scintillans*, McL., from San Paulo).

Mr. Crotch sent for exhibition *Trachyphlœus laticollis*, a *Curculionid* new to Britain, of which five specimens had been taken at Weston-super-Mare.

Mr. Müller exhibited some of the original drawings by Labram of the insects figured in Imhoff's "Insekten der Schweiz," &c.

Mr. Holdsworth, of Shanghai, sent a communication respecting the *Bombycidæ*, &c., named by Mr. Walker, *Œone punctata*, *Lasiocampa remota*, and *Lebeda hebes*. He reported that he had bred all three from larvæ which were undistinguishable; these latter fed upon pine and oak. The insects are very closely allied to the European *Bombyx pini*.

Mr. Bates read a paper "On a new genus and some new species of *Copridæ*," and exhibited specimens in illustration thereof.

Mr. Pascoe read "Descriptions of some new genera and species of Australian *Curculionidæ*."

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

Revision of the Family DELPHACIDÆ, and descriptions of several new species of the Genus *Delphax* of authors.

As the Vol. on the *Hemiptera-Homoptera* by Mr. Douglas and myself will not make its appearance for some little time, I have thought that probably it might be of assistance to those who are at work on these insects, if the results of our labours in certain groups down to the present time were laid before them as a kind of guide as I know well from experience how very difficult it is to determine any of the species, both through the indefinite manner in which they have been described, and their great similarity of facies. I think, however, that I have mastered the difficulties, and that the division of the genus *Delphax* of authors into sections, and the diagnostic characters following hereafter, will enable any one, after a little practice, to separate the species. The greater portion of the species composing this genus are of minute dimensions, and, by far the largest number occur only in an undeveloped form. This may probably have led earlier collectors to regard them only as "immaturities," and so they were passed over. Boheman was the first to do anything with these half-winged creatures, and, moreover, discovered that the developed and undeveloped forms of each species were very dissimilar, and that the outline of the genital segment of the male of each was different in shape (in mentioning the genital segment it is always to be understood that I refer to the terminal one) and Dr. Flor, acting on this hint in his Rhyncoten Livlands, vol. ii, describes, as well as can be done in words, the peculiarity of the form of the genital segment of every species known to him, both when viewed from the side and posteriorly. Still later, and with a greater depth of sagacity, Dr. Fieber observed that, in addition to this peculiarity of shape, the males of this same genus had certain styloid processes attached to the genital segment, and visible with the aid of a lens when viewed from behind (these processes are situate, and diverge more or less from, a little above the middle of the lower margin), and that each species had a form of process peculiar to itself. Since then, he has applied the same principle to the *Deltocephali*, and with a like result. Whether this peculiarity of structure in the males holds good throughout the whole of the *Homoptera*, or is only observable in certain sections, is to me as yet unknown, as I have only been able at present to investigate the species hereafter enumerated, and those of the genera *Cixius* and *Deltocephalus;* but I shall feel surprised if it is not the general rule.

In the Verhandl. d. k. k. zool. bot. Gesell. Wien for 1866, Fieber figures the genital segment, as seen from behind, showing the position and shape of the processes, of no fewer than 68 species of *Delphacidæ;* and, since that time, to my knowledge, he has added several others. Kirschbaum, in 1868, published a small volume on "*Cicadinen*," but I am sorry to say that it is almost incomprehensible. In many instances, the colour of the different parts of the insects is not given, and, moreover, I believe in a great number of cases that the same insect does duty under various names. Of Fieber's 68 species mentioned above, 2 are from Sarepta, 1 from Italy, 2 from the Pyrenees, 3 Spain and Portugal, 5 south of France, and 2 without any reference as to their locality; the remaining 53 may all be expected to be found in this country, in anticipation of which I append the following enumeration of the major portion of them, trusting that I may thereby excite greater enthusiasm in those who have already begun to collect, and raise up new workers in the field. Unlike the "pernicious bloodsucker of sleeping man," they are all warranted inodorous, and may be felt, but not smelt. The proper time for collecting them is between June and October, and by sweeping moist or marshy places by far the greatest number of species will be obtained.

The Family DELPHACIDÆ we divide into five genera, viz., *Asiraca*, *Delphax*, *Liburnia*, *Dicranotropis*, and *Stiroma*.

Genus 1—ASIRACA.

Face with two middle keels. *Antennæ* long, first joint foliaceous, transversely trigonate, second about one-third the length of the first. *Pronotum* with three indistinct keels. *Scutellum* with four longitudinal keels. *Elytra*, basal cell wanting. *Legs*, fore-thighs and tibiæ broad, foliaceous; posterior tibiæ with three spines.

Genus 2—DELPHAX.

Face with one middle keel, scarcely perceptible on the forehead. *Antennæ* long, first joint foliaceous, transversely trigonate, second two-thirds the length of the first. *Scutellum* with three longitudinal keels. *Elytra* with a short basal cell. *Legs*, fore-thighs and tibiæ *not* dilated.

Genus 3—LIBURNIA.

Crown variously shaped. *Face* with one middle keel, not distinctly furcate on the forehead, except in one or two instances. *Antennæ* *not* foliaceous, first and second joints somewhat cylindrical, first shorter than the second. *Scutellum* with three keels. *Elytra* generally only partially developed. *Legs* simple; hinder tibiæ with one upper and one lower spine.

Genus 4 – DICRANOTROPIS.

Face with two middle keels, united at a greater or lesser distance from the base. All the other characters as in *Liburnia.*

Genus 5—STIROMA.

Face with two middle keels, sometimes somewhat indistinct. All the other characters as in the two former genera.

Genus 1—ASIRACA, *Lat.*

Asiraca clavicornis, Fab. This insect is rarely taken by sweeping, as it seems to be of retired habits, living at the roots of grass, &c. (see Ent. Mo. Mag., vol. vi, 162).

Genus 2—DELPHAX, *Fab.*

This is the genus *Aræopus* of Spinola, a name which has been generally adopted by later authors, but it cannot stand, because Fabricius had already characterized his genus *Delphax* from the species *crassicornis* (see Ent. Sys. supp., 522, 1). The *Delphax* of authors therefore requires another name, and we have adopted that of *Liburnia*, Stål (see next genus). As far as we at present know, we have but one species in this country, which was figured and described by Curtis, whose name it will bear; and, singularly enough, in the text relating to the plate, he says, "*allied* to *crassicornis*, Fab. and Panz., 35, 19," a fact which has been hitherto overlooked, or considered of no value whatever. The following is the synonymy :—

DELPHAX PULCHELLA.

♂ *Asiraca pulchella*, Curt., 445, and plate (1833).

♀ *Asiraca dubia*, Curt., 445, 2 (1833).

Aræopus crassicornis, Marshall, Ent. Mo. Mag., ii, 31, 1 (1865).

Aræopus Minki, Fab., Verhandl. Zool. bot. Gesell., xvi, 522, 1 (1866).

It differs from *crassicornis* in having the basal cell of the elytra, and the space between the second and third longitudinal nerves only, black or brown; whereas in that insect the basal cell is white, and the entire space between the first and third nerves, as far, nearly, as the transverse nerves, black or brown. The shape of the processes attached to the genital segment is also different.

To be found not uncommonly by sweeping on the margins of the marshes around Lee, in August and September. The ♀ is very rarely found in the winged state.

Genus 3—LIBURNIA, Stål.

(Hem. Afv., iv, 179 (1866).

Delphax, Auct.

A. Head elongate, more or less narrow, sides more or less parallel.

1 (2). Pronotum and scutellum side keels diverging more or less posteriorly, but reaching to the posterior margin.

a. Scutellum middle keel reaching to the apex.

Developed form, ♂. Clavus with a short black streak at its apex.

Undeveloped form. Yellow, sides of the pronotum, scutellum, and a streak on the elytra and sides of the abdomen, black .. ..1. *notula*, Germ.

a a. Scutellum middle keel *not* reaching to the apex.

Developed form, ♂. Elytra black, clavus and anterior margin of the corium more or less yellow. ♀. Elytra yellow, with a more or less distinct black streak at the apex ... .2. *longipennis*, Curt.

Elytra yellow, with a more or less broad dark longitudinal streak.

Developed form, ♂. Genital segment fuscous or black .. 3. *fuscovittata*, Stål.

Do. ♂. Genital segment yellow...........4. *lineola*, Germ.

Cheeks with a large, round, black spot..5. *guttula*, Germ.

NOTE.—The head of the first four species is much longer than any of the following.

Undeveloped form of the four last species unknown to us.

Developed form, ♂. Abdomen yellow, genital segment posteriorly snowy-white .. ..6. *Scotti*, Fieb. M.S. (n.s.).

2 (1). Pronotum side keels *not* reaching to the posterior margin, but curved outwardly at or beyond the middle of the disc.

b. Scutellum side keels parallel.

Developed form, ♂. Greenish-grey; abdomen black, genital segment yellowish-white ....7. *smaragdula*, Stål.

Do. ♂. Green; abdomen and genital segment black... 8. *unicolor*, H. Schf.

Undeveloped form of the two last species bright green.

The different form of the genital segment of the ♂ of each of the following species, as seen from above, will be found to be of great assistance in separating them.

bb. Scutellum side keels diverging posteriorly.

* Keels of the head and face white.

Undeveloped form, ♂ ¶. Pronotum white, beyond the side keels a black patch almost concealed beneath the posterior margin of the eyes .... 9. *elegantula*, Boh.

¶ ¶. Pronotum and scutellum yellowish or pale brownish-yellow, keels of the former and middle keel of the latter white.

c. Middle keel of the face distinctly furcate before the apex.

Do. Head and face yellow, keels margined with black... 10. *collina*, Boh.

Do. Crown yellow, face between the keels black... 12. *distincta*, Flor.

Developed form of the three last species unknown to us.

cc. Middle keel of the face not distinctly furcate before the apex.

Developed form, ♂. Keels of the face margined with black... 11. *sordidula*, Stål.

¶ ¶ ¶. Pronotum and scutellum keels concolorous.

Undeveloped form, ♀. Face between the keels black .. 13. *Boldi* (n. s.).

** Keels of the head and face concolorous.

Developed form, ♀. Head, pronotum, and scutellum smoky-brown. Elytra pale brownish-yellow, nerves brown, distinctly granulated .... 14. *capnodes* (n. s.).

Undeveloped form, ♂. Head, face, pronotum, and scutellum yellow. Elytra fuscous-yellow, nerves distinctly granulated .... 15. *Signoreti* (n. s.).

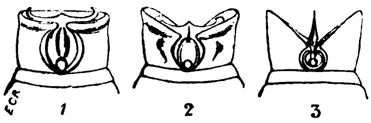
Undeveloped form, ♂. Head, pronotum, and scutellum clear brownish-yellow. Face between the keels black... 16. *adela*, Flor.

Undeveloped form, ♂. Head, pronotum, and scutellum clear brown. Face, pronotum, and scutellum beyond the side keels, black .... 17. *melanopachys* (n. s.).

Undeveloped form, ♂. Head clear brown. Pronotum and scutellum fuscous-brown. Elytra smoky lacquer-yellow... 18. *venosa*, Germ.

B. Head quadrate.

I here give an outline of the form of the genital segment, when viewed from above, of the ♂ of the three following species, so that the value of the character to be thus obtained in separating such difficult species as *pellucida* and *discolor* may be seen.



1. *forcipata*. 2. *pellucida*. 3. *discolor*.

Undeveloped form, ♂. Black, shining. Elytra, along the scutellar region, yellowish ....19. *forcipata*, Boh.

Undeveloped form, ♂. Piceous, somewhat shining ... 20. *pellucida*, Fab.

Do. ♂. Pronotum and scutellum black. Elytra brown, marginal nerve whitish-yellow...21. *discolor*, Boh.

Pronotum generally whitish or yellowish-white.

Developed form, ♂. Elytra pale, almost transparent. Clavus with a short black streak at the apex...22. *striatella*, Fall.

Do. ♂. Clavus *without* a short black streak at the apex... 23. *neglecta*, Flor.

Do. ♂. Elytra with a broad, curved, black streak at the apex .... 24. *speciosa*, Boh.

Exceedingly like a small *Delphax pulchella* (see preceding genus). On the Continent there is another species closely allied to ours (*basilinea*, Germ.).

1. Head, pronotum, and scutellum brown.

Undeveloped form, ♂. Elytra posterior margin almost truncate, with two white oblong spots, the nerves spotted with black, but not so prominent as in the next species ....25. *Fieberi* (n. s.).

Do. ♂. Elytra posterior margin rounded...26. *lepida*, Boh.

2. Head and pronotum brown. Scutellum black, sides and apex more or less white.

Undeveloped form, ♂. Elytra black, scutellar and posterior margin white. Abdomen black. Genital segment, viewed from behind, black ....27. *leptosoma*, Flor.

3. Pronotum and scutellum white.

Undeveloped form, ♂. Elytra dark brown or pitchy-brown, scutellar region pale, posterior margin narrowly white. Abdomen black. Genital segment, when viewed from behind, greyish-white...28. *albofimbriata*, Curt.

This is an old manuscript name of Curtis, of which *apicalis* was the ♂ and this the ♀. Fieber in his list (Verhandl. K. K. Zool. bot-Gesell. xvi, 534, 35) assigns it to Signoret; but this is an error, as that gentleman possesses types of both sexes, received from Curtis, the labels written in a lady's hand (most probably that of his daughter).

Undeveloped form, ♂. Elytra black, posterior margin white. Abdomen black, last segment above, and the genital segment, margined with white .. 29. *niveimarginata* (n. s.).

4. Head, pronotum, and scutellum entirely yellow.

Undeveloped form, ♂. Elytra black, with a purplish gloss, posterior margin very narrowly whitish-yellow. Abdomen yellow. Genital segment black...30. ***pullula***, Boh.

Undeveloped form, ♂. Elytra black, with a purplish gloss, the whole margin narrowly and scutellar region broadly yellowish.........................31. ***lugubrina***, Boh.

Do. ♂. Elytra yellow. Abdomen black. 32. ***denticauda***, Boh.

5. Head and pronotum yellow.

Undeveloped form, ♂. Scutellum black. Abdomen black. Genital segment yellow .... 33. *Dalei* (n. s.).

6. Head, pronotum, scutellum, and elytra yellowish or greyish-yellow.

Undeveloped form, ♂. Abdomen black, a dorsal line and three or four longitudinal rows of streaks on the sides, yellow. Genital segment above yellow...34. ***cognata***, Fieb.

Do. ♂. Abdomen and genital segment entirely black... 35. ***exigua***, Boh.

Undeveloped form, ♀. The space between the keels on the crown, face, and clypeus smutty or black, keels of the two latter yellowish-white. Elytra sordid yellow, distinctly granulated. Abdomen sordid yellow, the margins of the segments more or less broadly black .... 36. ***uncinata***, Fieb.

We have not as yet met with the ♂ of this or the next species. The ♀ most nearly resembles that of ***pellucida*** or ***discolor***, whilst the ♂ (according to Fieber's outline) may be known by the genital segment, as seen from above, somewhat resembling that of ***forcipata*** (see sketch).

Undeveloped form, ♀. Face, from the base almost to the forehead, and clypeus black, keels yellow. Elytra pale and transparent, as long as the abdomen. Abdomen whitish-yellow, two or three segments at the base on the sides margined with black... 37. ***obscurella***, Boh.

Not unlike the undeveloped ♀ of ***neglecta***, but larger and clearer in colour.

C. Head transverse.

Undeveloped form, ♂. Crown yellow. Face black, between the keels spotted with white. Elytra dark brown. Abdomen piceous, genital segment above paler...
38. *Douglasi*, Fieb. M.S. (n. s.).

Developed form, ♂. Head, pronotum, and scutellum yellow. Pronotum more or less brown towards and at the apex. Elytra with a very pale lavender hue, nerves distinctly and somewhat remotely spotted with dark brown; apex with a curved brown band, its inner margin divided into rays, which run along the longitudinal nerves to the marginal nerve; apex of the clavus with a short black streak.

Undeveloped form, ♂. Elytra not covering half of the abdomen, anterior portion whitish, posteriorly with a broad brown band, nerves spotted as in the developed form ..
39. *limbata*, Fab.

Exceedingly common in damp places in the latter form amongst rushes, &c. This is the *pictipennis* of Curtis.

Developed form, ♂. Head brown. Face black, with two transverse white patches on each side of the middle keel Pronotum dark brown, side keels and posterior margin more or less greyish. Scutellum black, middle keel generally brown. Elytra pale, nerves brown; along the inner margin a more or less broad, smoky streak.

Undeveloped form, ♂. Head yellow. Face as in the developed form. Pronotum and scutellum grey, outer angles of both and a streak along each side of the middle keel of the latter brown. Elytra pale, covering more than half of the abdomen. Abdomen black, more or less broadly yellow above .. 40. *lineata*, Perris.

D. Head pentagonal.

Undeveloped form, ♂. Head, pronotum, scutellum, and elytra white or faintly yellowish. Abdomen deep glossy black, the two last segments margined with snow-white. Legs black............... .. ... 41. *mesomelas*, Boh.

(*To be continued.*)

DESCRIPTIONS OF NEW SPECIES OF DIURNAL *LEPIDOPTERA* FROM MADAGASCAR.

BY CHRISTOPHER WARD.

PIERIS ANTSIANAKA, *n. s.*

Male. Upper-side. Anterior wing white, a small black spot at extremity of cell, a larger black spot between first and second discoidal nervules. Apex black.

Posterior wing entirely white.

Under-side. Anterior wing white, with base broadly marked with orange. Black spots as on the upper-side, but more clearly defined and with two additional, near the anterior margin.

Posterior wing entirely white. Expanse $2\frac{3}{10}$ inches.

Allied by its plumule to *P. Hedyle*, but quite distinct in appearance.

EREBIA RAKOTO, *n. s.*

Upper-side. Brown. Anterior wing with black ocellus near the apex, containing double white eye.

Posterior wing with two small ocelli, which are confluent, and near the anal angle.

Under-side. Brown. Anterior wing with ocellus as on upper-side, and placed on a band of greyish-white.

Posterior wing broadly marked on inner margin with greyish-white, which is continued as a band across the wing, and upwards in a narrow streak to the anterior margin. Two small ocelli near the anal angle. Expanse $1\frac{4}{10}$ inches.

EREBIA ANKARATRA, *n. s.*

Upper-side. Rufous-brown, changing to brown at the margins. Anterior wing: black ocellus with white eye near the outer margin, a smaller one above near the apex.

Posterior wing: two small ocelli near the posterior margin.

Under-side. Brown, with numerous small waved markings of a darker shade. Anterior wing with ocelli as on the upper-side.

Posterior wing with a row of six ocelli, bordered on the inner side with a narrow waved line of darker brown. The three upper ocelli are the smallest, the fourth and fifth the largest. Expanse $1\frac{6}{10}$ inches.

MYCALESIS VOLA, *n. s.*

Male. *Upper-side*. Brown. Anterior wing with two ocelli, upper one near apex, very small, lower one near centre of wing, much larger; the outer ring rufous-brown.

Posterior wing with a small black ocellus with white eye near the outer margin.

Under-side. Brown. Both wings crossed by an oblique, clearly defined yellow band. Anterior wing with ocellus as on the upper-side.

Posterior wing with small ocellus near the upper margin, and touching the inner side of the yellow band. Expanse 1½ inches.

MYCALESIS ANKOVA, *n. s.*

Male. *Upper-side*. Brown. Anterior wing with large ocellus near the centre, outer ring orange, a smaller one at the apex.

Posterior wing with two small ocelli near the posterior margin.

Under-side. Light brown. Anterior wing with ocelli as on the upper-side.

Posterior wing crossed midway by an oblique band of darker brown. Expanse 1½ inches.

MYCALESIS IBOINA, *n. s.*

Male. *Upper-side*. Brown. Anterior wing as in *Ankova*.

Posterior wing: the margin undulating, and a lighter brown, edged on the inner side with dark brown; one small ocellus in centre of wing.

Under-side. Both wings crossed obliquely with a broad band of grey-brown, and with numerous small waved markings of darker brown. Anterior wing with one ocellus, which loses its yellow on the upper-side.

Posterior wing without ocelli. Expanse $1\frac{8}{10}$ inches.

MYCALESIS AVELONA, *n. s.*

Male. *Upper-side*. Brown. Anterior wing: midway near the outer margin an ocellus, black with white eye, and broadly surrounded with orange, which extends upwards to the extremity of discoidal cell.

Posterior wing angular; the margin strongly dentate and bordered with a narrow band of light brown. A large tuft of hairs at base of wing.

Under-side. Light brown, with a number of small waved markings of darker brown, and crossed vertically by a yellow band. Anterior wing with two ocelli, the upper one very faint, the lower one united to the yellow band.

Posterior wing with narrow band of yellow edged with black, following the outer margin. Two small black spots separated by a red spot, at the anal angle. Expanse 2 inches.

A very distinct species, remarkable for the angular form and dentate margins of the lower wings.

I have recently received the above seven species from Mr. Alfred Crossley, my collector in Madagascar.

Halifax: *June*, 1870.

ON A NEW GENUS & SPECIES OF *CARABIDÆ* ALLIED TO *CARABUS* PROPER.

BY H. W. BATES, F.Z.S.

Among the zoological collections lately brought home by Mr. Swinhoe, our Consul at Amoy in China, was a small series of Coleopterous insects (unfortunately in a rather dilapidated condition) from the neighbourhood of Pekin. One of the species turns out to be an interesting new form, at first sight appearing like a *Carabus*, and without anything especially attractive in its appearance, but, on examination, proving to be a new genus, closely allied to the Chinese and Japanese groups *Damaster* and *Coptolabrus*. In the form of the head and thorax, however, the insect is totally dissimilar from the two genera just named. The thorax is much broader than long, and has no trace of lateral angulation or sinuation behind the middle; but the head and mandibles may be considered as essentially the same as in *Damaster*, with the difference that they are very greatly diminished in length and increased in width and thickness. Together with this formation is combined a sinuate labrum, deeply sunk between the base of the mandibles. The elytra offer no trace of prolongation of the sutural apex. An essential character in distinguishing the genus from *Coptolabrus* may be also especially mentioned—the great relative length of the penultimate joint of the maxillary palpi. This character can be stated only of the female, as the maxillary palpi are unfortunately deficient in the male example, and the labial in both male and female. The mentum has no tooth in its emargination.

CATHAICUS, *nov. gen.*

Elongato-ovatus. Caput cum collo crassum, mandibulis dilatatis, suprà late sulcatis, intus medio grosse dentatis; mentum sine dente. Thorax transversus, lateribus rotundatis, postice haudquaquam sinuatis. Elytra apice rotundata.

Elongate-ovate in form, like certain species of *Carabus* (*e. g.*, *C. croaticus*), but of different facies, owing to the peculiar form of the head and thorax. Head longer than the thorax and nearly as broad, especially in the female, in which the head is twice the bulk of that of the male; widening in front of the eyes, neck very broad and thick: eyes not projecting beyond the lateral margin of the head. Labrum deeply sunk between the base of the mandibles, sinuate on its front edge. Mandibles of great size and strength; dilated at the base beneath, the lateral groove (which is transversely strigose) being thus thrown on the dorsal face; the inner edge dilated about the middle into a broad tooth, thence tapering to the apex, which is not very acute or falcate, the tips crossing. Inner maxillary palpi excavated within near the apex, as in *Damaster* and *Coptolabrus*. Mentum without tooth. Palpi securiform, terminal joint of the maxillary much shorter than the penultimate (rest wanting). Antennæ slender, setaceous, reaching but little beyond the base of the elytra, basal joints not compressed. Thorax short, sub-quadrate, broader by one-third than long, narrowed behind, sides rounded; lateral margins scarcely dilated. Elytra sculptured as in *Damaster*, but more coarsely; elongate-oval, apex rounded. Legs similar to those of *Carabus*. Three joints of the anterior tarsi of the male dilated, flattened above, and furnished with a dense brush of short hairs beneath.

CATHAICUS SWINHOEI, *n. s.*

Niger, sub-opacus, capite thoraceque subtiliter dense punctatis; elytris utrinque tuberculis minutis sub-æqualibus in seriebus circa 15 *ordinatis, interstitiis minutissime scabrosis, opacis.*

Black, with a slight bluish tinge, scarcely shining. Head minutely and thickly punctured, forehead with a large and deep central depression. Thorax, in the ♀, much broader in front and less rounded on the sides than in the ♂; in the ♂, sub-quadrate, rather more narrowed behind than in front; sides in both sexes very narrowly margined; anterior angles closely applied to the sides of the neck, posterior angles slightly produced and obtuse, surface finely punctulated. Elytra elongate-oval, slightly depressed in the middle, much more convex posteriorly, and abruptly declivous towards the apex; surface of each with about fifteen rows of small, sub-quadrate shining elevations, the interstices rugose-opaque, varied with minute granules. Body beneath, and legs, shining.

Length 14 to 15 lines. Hab.: Pekin.

One pair (♂ and ♀) from the neighbourhood of Pekin; brought home by Mr. Consul Swinhoe, to whom all branches of zoology are so much indebted for his researches in China, and in the islands of Formosa and Hainan.

London: June, 1870.

DESCRIPTION OF A NEW SPECIES OF *BYTHINUS* FROM GREAT BRITAIN.

BY E. C. RYE.

BYTHINUS GLABRATUS, *sp. n.*

Rufo-testaceus, fere lævigatus, pube longiore parcius vestitus; antennarum articulo basali cylindrico, elongato; pedibus tenuibus, tibiis posticis elongatis, apice intus paullo incurvatis.

Maris (?) pedes paullo crassiores. Long. corp., vix ⅔-lin. (Anglic.).

Entirely testaceous-red (with the exception of the eyes, which are black, and very small), very shining, and thinly clothed with scattered long yellowish hairs. *Head* rather narrow and elongate, with the vertex elevated, smooth, and exhibiting the trace of a linear depression in the middle of the base, and (viewed from the front) a shining Y-shaped depression in the middle reaching from just below the eyes to the insertion of the base of the antennæ,—the parts near this depression being obsoletely roughened. *Antennæ* rather slender, with the basal joint almost cylindrical (rather narrowest at the base) and almost as long as joints 3—8 taken together; 2nd joint rather narrower than 1st, as long as 3 and 4 together, with no perceptible peculiarity of structure; 3—9 gradually getting transverse; 10 and 11 forming a club, the apical joint being oval-conic. *Maxillary palpi* somewhat as in *B. Curtisii*, but with the apical joint not so long or so broadly securiform, and with the basal joint rather more curved and not so abruptly thickened towards the apex. *Prothorax* cordate, rather wider at its upper third than the head, thence rather straightly narrowed behind; elevated, smooth, and very shining in front, with a large shallow fovea on each side below the middle, reaching the lateral margin and connected across the base of the thorax by an impressed curved line. *Elytra* with the sides gradually widened and rounded from the base to the outer posterior angle, and with the usual humeral plica and sutural stria, but not quite so elevated or laterally rounded as is usual in the genus, and with only a few obsolete traces of punctures. *Abdomen* smooth and shining. *Legs* elongate and slender; with the femora slightly thickened and the anterior and intermediate tibiæ slightly thickened on the outer side below the middle: the posterior tibiæ are considerably longer than the others, and are slightly thickened and curved inwards towards the apex.

Three specimens of this very interesting species were taken by Messrs. F. H. and E. A. Waterhouse at the end of the summer of 1865 in a mossy hollow on the chalk on Seaford Downs, in common with *Trichonyx Mærkelii* and a small yellow *Myrmica*. It is rather larger than *B. securiger* or *Burrellii*; but its shining appearance, light colour and want of punctuation, and the long basal joint of its antennæ, at once remove it from any species to the description of which I can obtain access. M. Chas. Brisout de Barneville, to whom I have communicated it, returns it as utterly unknown at Paris.

10, Lower Park Fields, Putney, S.W., *June*, 1870.

Capture in Britain of Bembidium quadripustulatum, Dej.—I have lately had the good fortune to capture a small series of this very distinct species. It is allied to *B. quadrimaculatum*, and intermediate in size between that species and *B. quadriguttatum*, from the former of which it differs in its superior size and darker legs, and in its antennæ being black from the base.

I found this handsome *Bembidium* at Bearsted, near Maidstone, in a wet place, which also produced me one specimen of the rare *B. Sturmii*.—HENRY S. GORHAM, Bearsted Vicarage, *June* 18*th*, 1870.

Capture in Northumberland of Cryptophagus fumatus, Gyll., a species new to the British List.—I have succeeded in finding a local specimen of what I think is the true *Cryptophagus fumatus*, Gyll.; Erichson, Insecten Deutschlands, iii, 363. The specimen is a male, which in its colouring and general form curiously simulates (as Erichson notes) a large *Corticaria*. In the form of the elytra, colour of pubescence and size, this insect is most closely allied to the recently introduced *C. validus*, Ktz. (Ent. Mon. Mag., vii, 9); from which it differs especially in having the thorax more nearly quadrate, with the anterior tooth more developed (sub-cyathiform, and somewhat suggestive of the anterior tooth of *C. acutangulus*): from *E. cellaris* its differently shaped thoracic anterior tooth and elytra, and its short golden pubescence, which is not disposed in striæ, will separate it at a glance.—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne, *June* 4*th*, 1870.

[Mr. Bold has kindly allowed me to examine the insect above mentioned, which is in my opinion also undoubtedly the true *C. fumatus*, Gyll.—E. C. R.]

Note on the Hydrochus parumoculatus of Hardy.—In preparing a revision of the Catalogue of Coleoptera of Northumberland and Durham, I have found it necessary to examine many local species, the claims of which to be considered indigenous might be thought doubtful. Amongst several others kindly sent to me by Mr. Hardy for that purpose, was his type of the above insect, which, after a careful examination, I was led to think was one of the *Elmidæ*, and closely allied to the recently introduced *Macronychus 4-tuberculatus*. Not finding any description at all agreeing with Mr. Hardy's insect, I forwarded it to Mr. G. R. Crotch, who at once endorsed my opinion, and has kindly favoured me with the following re-description and remarks.

"*Macronychus* (?) *parumoculatus*, Hardy, Trans. Tyneside Nat. F. Club, ii, 270; Cat. Ins. North. and Dur. Col. (App.), p. 242 (*Hydrochus*).

Brunneus, tibiis tarsisque pallidis; thorace elongato, antice producto, paullo ante apicem fortiter constricto, disco inæquali, sat fortiter punctato; elytris fortiter striato-punctatis, punctorum seriebus 8, *insterstitiis* 2° 5°*que fortiter carinatis, postice conjunctis; tarsis posticis tibiarum longitudini æqualibus.* *Long.* 1¼-*lin.*

Described by Hardy as a *Hydrochus*, but clearly one of the *Elmidæ*, and nearest in form to *Macronychus*, with which it agrees in the structure of its tarsi, &c., though the antennæ are 11-jointed. From *Ancyronyx* it is removed by its head, which is constructed precisely as in *Macronychus*."

Many of Mr. Hardy's insects were collected and mounted by his younger brother and another boy; and the one above described was found standing amongst the specimens taken in the vicinity of Newcastle: more of its history he could not learn.—ID.

Note on varieties of British Coleoptera.—Among some beetles taken at Lewes by Mr. G. H. Verrall, I find a few specimens of a race of *Hydrobius fuscipes*, Linn., which I do not remember to have seen noticed in this country, if they be not the *H. subrotundus* of Steph., Ill. Mand., ii, 128, Manual, 90, with which in certain points they agree. Compared with typical *fuscipes*, these insects are shorter, broader and more globose, with shorter legs and tarsi, the elytra not so evidently crenate-striate, and with no larger irregular punctures in the alternate interstices. Among the few specimens above referred to are some affording traces of transition to the type form. Dr. Sharp, to whom I communicated these examples, tells me that he also has observed the existence of this race, both in Great Britain and Spain.

I also have in my collection a specimen of another var. of the same species, taken at Barnes, and which I refer to the *H. æneus* of Solier, Ann. Soc. Ent. Fr., iii, 1834, 314; conspicuous from its bright metallic green colour and light legs (it is quite mature). Erichson (Col. March., 1839) refers to this var., which seems certainly identical with the prior *H. chalconotus* of Leach (1814) and Steph. Mand. ii (1829), 128.

H. subrotundus and *chalconotus* are quoted in Wat. Cat. as synonyms (not vars.) of *H. fuscipes*.

Among a number of *Anchomenus versutus*, Sturm, recently taken by me at Wimbledon, I find a few of a deep black colour, which are, I presume, to be referred to the *A. lugubris* of Dufts., quoted by Schaum as a form of *A. versutus*, of which they preserve the characteristic delicate build, short thorax, flat interstices, and short and thin antennæ and legs.—E. C. Rye, 10, Lower Park Fields, Putney, S.W.

Ceuthorhynchus vicinus, Brisout.—M. Brisout informs me that this insect is the *C. triangulum* of Märkel and Schönherr, according to Germar's type.—Id.

"*The Fly*" *and* "*The Flea.*"—Those interested in hop growing are just now discussing the ravages of two pests under the above titles. "The Fly" is well known to be an *Aphis;* but I do not think it is so well known that "The Flea" is a small beetle, *Psylliodes attenuatus*, Ent. H. I know not whether other species of the *Halticidæ* feed on the hop; but this is the one that does the damage hereabouts. —Henry S. Gorham, Bearsted, Maidstone, *June 18th*, 1870.

[I believe that most of the functions of life are performed by all the *Halticidæ* "on the hop."—E. C. R.]

Something like reflection in Ceuthorhynchus sulcicollis, Gyll.—Having some time ago followed up the life history of *Ceuthorhynchus sulcicollis*, in order to form an independent judgment on the various accounts published, I had the pleasure of observing the following little fact, which may be worth while mentioning.

Finding that exclusions from the cocoons generally took place in the evening, or at night, I often placed a series of cocoons on a white sheet of paper before me on my working table.

Now, as a rule, after breaking open the cocoons in an irregular fashion, the beetles clambering out as best they could, at once tried to make their escape; or, if arrested, shammed death instantly, after the most approved weevil manner, but one little fellow which I stopped first at a distance of about two inches from its deserted cocoon by the touch of my pencil, after shamming death for a few minutes and trying again to get away in the same direction, when my breathing over it caused it to mimic a pellet of earth for the second time, to my great astonishment, turned right round after a short rest, and nimbly crawled back to its own cocoon, and entered it. Turned out again, and left at the same distance from its home, it was not long in retracing its steps into the same cell, where it remained motionless for the next four hours, without stirring out again. And there I left it, as it was getting late.

The conclusions I draw from this single fact may be based upon insufficient evidence, but I do not shrink from stating them. They are, firstly—that instinct is hereditary as proved by the beetle using its power of shamming death almost instantly after its first extrusion; and secondly—that apart from this power it possessed the faculty of will, as it tried a distinct plan of safety when the usual means of protection failed.

An unbroken, even surface lay all round; the beetle meant to escape; obstacles arose; hereditary instinct tried to met them, but owing to changed surrounding conditions, it signally failed in doing so. Now what did occur: this little creature did exhibit a plain proof of possessing a spark of what proud man is apt to term his "god-like reason," by getting the better of its instinct for its own welfare's sake.

The enormous chasm separating man's will and insect volition will probably never be bridged over; but it is not derogatory to the true dignity of our race humbly to confess, that the difference, however great, is not absolute, but one of degree, because, even with our will-force in its most concentrated state, we cannot climb to the top of the ladder, but must content ourselves with the conception of a fountain head of volition, as infinitely incomparable to our own will as eternity is to time.—Albert Müller, South Norwood, S.E., *May* 15*th*, 1870.

Capture of Strophosomus hirtus, Schön., Walt.—In the spring of 1868, I purchased some early primroses wrapped up in moss, the latter having evidently been gathered at the same spot as the flowers, and bound round their roots to keep them moist. It occurred to me to loosen this binding, and shake it well over paper; and, having done so, I succeeded in finding (besides several commoner species) a fine fresh specimen of *Tropi(do)phorus carinatus!* This year, I thought I would try my luck again; and accordingly, early in April, the weather being cold at the time, I invested sixpence: now, although it may have been true enough, as regards Peter Bell (who, as I presume, was no Coleopterist) that

> "A primrose at the river's brim
> A simple primrose was to him,
> And it was nothing more:"

yet it turned out considerably more to me; for careful search of the roots and moss produced *one* small beetle, quite unknown, but which, after some trouble (very few collections containing the insect) was identified by Messrs. F. Smith and C. O. Waterhouse, of the British Museum, as the *Strophosomus hirtus* of Schönherr and Walton (= *Platytarsus setulosus*, Schön., Seidlitz; Ent. Ann., 1869, p. 46).—W. G. Pelerin, 10, Hertford Villas, Montague Road West, Dalston, *June*, 1870.

Re-occurrence of Triplax Lacordairii at Darenth Wood.—I have, in the early part of this summer, again taken *Triplax Lacordairii* at Darenth Wood in fungus, as before.—G. C. Champion, 274, Walworth Road, S.E.

[This insect has also occurred to Dr. Power and Mr. O. Janson, at the same place.—Eds.]

Fig. i. Ent. Annual p. 1871 Fig. 4.

Occurrence of Cordulia metallica, Van der Lind., a Dragon-fly new to Britain.—No sooner is the "Catalogue of British *Neuroptera*" published, than I have to record an important addition, and which, but for an oversight, would have been inserted in its proper place. It is *Cordulia metallica,* of which a series of males were taken by Dr. F. Buchanan White in Strathglass, Inverness-shire, last year. Wanting duplicates of *C. arctica* for a continental friend, I asked Dr. White to obtain some for me. He did not visit Rannoch, the locality in Scotland for that species, but sent up several insects from Strathglass, which he imagined to be the same species, and as such they remained with me for some time without examination. In fact, I had sent over all but one example before becoming aware of the mistake. The species is allied to *arctica,* but more robust, the abdomen broader, the face with a broad transverse yellow band, the appendices of the male without internal teeth, and the wings of the female (of which I have not yet seen a native example) with a broad yellowish costal margin. It had already been considered as British, I believe by Van der Linden himself, but on the authority only of a bad figure in Harris' "Exposition of English Insects," which is probably intended for our more common species, *C. ænea.*

There is no reason why we should not possess in Britain all the European species of *Cordulia. C. ænea,* L., is widely distributed throughout these islands, but local; *C. metallica,* V. d. L., is now recorded as Scottish (widely spread over Europe); *C. alpestris,* Selys, occurs in Lapland, Austria, and the Alps, and ought to be found in Scotland; *C. arctica,* Zett., found at Rannoch, in Scotland, and Killarney, in Ireland, is like the last, an alpine or boreal insect; *C. Curtisii,* Dale, found in the New Forest and Dorsetshire, in a southern form, not occurring again till we reach the south of France, and the Iberian Peninsula; *C. flavomaculata,* V. d. L., has not been seen here, but is widely distributed on the continent.—R. McLachlan, Lewisham, 8*th June,* 1870.

Note on Dimorphism of American Cynipidæ, &c.—The following extracts from a letter I have lately received from Mr. Homer F. Bassett, of Waterbury County, U. S. A., may present some interest. Mr. Bassett writes:

"My own observations tend to confirm the theory of Dimorphism; and the day "is not far off when the unisexual species will be correctly referred to their bisexual "progenitors. The gall (on a species of oak) of which I send you a sketch was "gathered a few days since (March, 1870), and I find it filled with perfect gall-"insects, only their wings are not fully developed, though in them the peculiar venation "is plainly seen. But all I have cut out of these galls are females; their abdomens "are full of eggs, and they are, I have no doubt, the dimorphic form of an unde-"scribed *Cynips* that was found in countless numbers in galls on the petioles of the "leaves of the same tree last June. I reared many hundred of them last summer, "and I am waiting patiently till this spring generation shall appear, to learn—first, "if it will contain any males; secondly, to compare them carefully with the June "brood. . . . . . You are, no doubt, aware that among our sub-apterous species "none but females are found. Is this the case among European species? If so, "is not the presumption strong, that they are dimorphic forms of winged bisexual "species? I do not despair of yet being able to settle this question, for a very "large proportion of North American species yet described are found more or less "abundantly on the twelve or fourteen species of oak that grow in this vicinity."

The questions raised by my correspondent apply to some extent equally well to the British *Cynipidæ*.

By far the greater part of the latter have been described by the Rev. T. A. Marshall, in the pages of this Journal, yet much remains to be done concerning the history and appearance of successive broods of even our commonest species; and it is to be desired that some observer, living in the country and with plenty of leisure at his command, would take the trouble of carrying out a series of closely watched experiments on a large scale, and extending over various seasons, as such continued experiments can alone give us "more light" about dimorphism, and the *rôle* the seldom occurring male element plays in the propagation of hymenopterous gall-flies.—ALBERT MÜLLER, South Norwood, S.E., *May*, 1870.

On the occurrence of Andricus curvator, Hartig, in Britain.—To my knowledge, the credit of first breeding British specimens of this *Andricus* is due to my friend Mr. H. W. Kidd, of Godalming, who sent me specimens of it a year ago. Shortly afterwards I bred it myself from what Mr. Kidd terms the "kidney-shaped gall" of the oakleaf. This gall consists of a thick swelling of any one of the ribs of the oakleaf, projecting above and beneath and forming a large cell, to the interior of which one or two reniform, first whitish and afterwards chestnut-brown, thin small papery cases are found loosely attached by one end. In this reniform case the larva is hatched and passes its whole metamorphosis, the imago making its escape by piercing first the case and subsequently the outer green shell of the gall.

I append Hartig's description; (Germar's Zeitschrift, 2, p. 191, 5.) *Niger; antennis fuscis, basi pallidioribus; pedibus testaceis, coxis, femoribus posticis latere interiore plus minus nigris.—Long. lin.* 1. ♂. ♀.

I may add that some of my specimens have had the benefit of being examined by the Rev. T. A. Marshall.—ID.

Synonymic notes on some species of Cecidomyia.—I think it best to bring forward the following synonymical notes separately, so as not to have to introduce the matter into the projected list of British galls.

Cecidomyia veronicæ, Bremi.
Bremi, Beiträge, etc., 1847, p. 49, 6.
Loew, Die Gallmucken, Pr. d. Pos. Gymn., 1850, p. 37, 41.
Winnertz, Beitrag, etc., Linnæa Ent., 1853, p. 237, 24.
=*Cec. chamædrys*, Inchbald. Ent. W. Intelligencer, 1860, Vol. 8, p. 196.

The larvæ form the tufts of woolly leaves on *Veronica chamædrys*.

Cecidomyia millefolii, Loew.
Loew, *ut supra*, 1850, No. 46.
=*Cec. achilleæ*, Inchbald, *ut supra*, 1860, Vol. 8, p. 195.

The larvæ inhabit calyx-shaped galls in the axils of the leaves of *Achillea millefolium*.

Cecidomyia floricola, Winnertz.

Winnertz, *ut supra*, 1853, p. 289, 78.
=*Cec.* ——, Inchbald, *ut supra*, 1860, p. 164, œconomy.

The larvæ inhabit the flower tufts of *Achillea ptarmica*, which they transform into woolly galls.—Id.

Deilephila livornica at Folkestone.—Whilst rambling in the Warren yesterday afternoon, a working geologist named Griffiths brought me an example of this rarity, which he had just then picked up on the shore. The creature (a ♂) was imprisoned in a capacious basket, and being rather lively, I had some difficulty in securing it, but eventually managed to get it into a large chip box, and to stifle it with tobacco smoke before much damage was done. Griffiths informs me that when he first saw the insect it was out at sea, flying straight towards him, and that as soon as it reached land it dropped, as if "dead beat."—H. G. Knaggs, Folkestone, *May 27th*, 1870.

Deilephila livornica in South Wales.—Perhaps it may be interesting to some of your readers to know that a magnificent specimen of *Deilephila livornica* was given to me on Sunday morning last (May 22nd). It was taken at rest on a bank a few yards from our own garden.—Ernest Kaye, Langharne, Carmarthenshire, S. Wales, *May 23rd*, 1870.

Deilephila livornica in Dorsetshire.—In a letter received from the Rev. O. P. Cambridge, of Bloxworth, he remarks that he had lately seen three specimens of this insect. On two occasions he had no net with him; on the other he had, but missed the insect. Two of them were sucking at the blossoms of the Lousewort. —F. Bond, 203, Adelaide Road, N.W., *June*, 1870.

Deilephila livornica at Waltham Abbey.—A specimen of this insect has occurred in the above locality, concerning which Mr. Davis gives the following particulars. It was captured by Mrs. G. Blount on the 26th April, at rest on a shed at the back of the house at Paradise Row, and is now in the possession of Mr. Blount.—W. C. Boyd, Cheshunt, 16*th June*, 1870.

Deilephila livornica at Teignmouth.—Mr. Brooks, surgeon, of Shaldon (about a mile from this place), shewed me yesterday a specimen of *D. livornica* which had been brought to him by a boy, who said he had found it at Shaldon about a week since. It was alive when the boy brought it, and the wings were set out with pins when I saw it. It seemed to have been injured in capturing, but otherwise was not a worn specimen, though it must have hybernated.—W. R. Hall Jordan, Teignmouth, 25*th May*, 1870.

Deilephila livornica at Birmingham.—An example of this insect was caught by a boy, at 5 p.m., on the 24th May. He found it on a vine leaf, the branches of which overhang a wall; and, knowing a friend of his who is a collector, took it to him. I had the pleasure of seeing it alive the same evening; it is a splendid female, and had only just emerged from the pupa.* On the 30th May another female was captured at Bromsgrove, about ten miles from here, by a man who was cutting cabbages; this one has laid a few eggs.—Fred. Enock, 75, Ryland Road, Edgbaston, Birmingham, 1*st June*, 1870.

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* We believe all the specimens of *livornica* captured in spring have hybernated.—Eds.

Chærocampa nerii at Birmingham.—I have a ♂ example of this insect in my possession, the circumstances of the capture of which are as follows. A few days since I called on my friend Mr. Franklin, taxidermist, after an interval of some time, to see if he had had anything brought to him lately. He showed me a very worn ♂ of *nerii* which a young woman had brought to him some time ago. She said her brother caught it in their garden during the autumn of 1869, and after showing it to their friends, put it in a box and forgot all about it till three months since, when of course it was dead, and she took it to Mr. Franklin to see if he would give her anything for it. When the box was opened it was full of "fluff," and the insect much damaged at the tips of the wings, both antennæ and nearly all the legs broken off; it had never been pinned. There was not the slightest attempt at deception in the matter.—Id.

Capture of Acronycta alni at Hampstead.—During an evening's collecting in Bishop's Wood, Hampstead, on the 21st May last, I was fortunate enough to secure a very fine male example of this rare species; believing the insect to be new to the locality, I think a note of it will interest your readers.—James L. Courtice, 22, College Street West, Camden Town, N.W., *June* 10*th*.

Sesia philanthiformis in Scotland.—I have the pleasure of being able to place this species on the Scottish list, having found the larvæ and pupæ in the stems of *Statice armeria* in this neighbourhood.—F. Buchanan White, Rockcliff, Colvend, Dalbeattie, *June* 8*th*, 1870.

Eudorea atomalis at Witherslack.—Last July I took this species for the first time at Witherslack. As far as I know, it had previously only occurred at Rannoch, in Perthshire. The species has been named for me by Dr. Knaggs.—J. B. Hodgkinson, Spring Bank, Preston, *May* 25*th*, 1870.

Depressaria pallorella, &c., in Sussex.—During the last month I secured about two dozen specimens of this species in a rough field near Tilgate Forest, in Sussex, the same locality in which I captured two specimens some years ago. I also met with *Aleucis pictaria*, *Tæniocampa leucographa*, *Hoporina croceago*, *Xylina semibrunnea*, &c.—E. G. Meek, 4, Old Ford Road, Bow, E., *May* 2*nd*, 1870.

Early butterflies—The season is considered very backward, and in the New Forest the foliage is, I am told, less advanced by fully a month than it was at this time last year; yet, on the 7th inst., I found *Leucophasia sinapis*, *Argynnis Euphrosyne*, and *Thecla rubi*, all out near Lyndhurst. The appearance of these butterflies, when the oaks showed no sign of leaf, and even the hawthorns were but half out, appeared to me rather curious, as the causes which retard vegetation are considered to produce the like effect upon insect life.—W. A. Lewis, Temple, *May* 17*th*.

Note on Peronea potentillana, Cooke (comariana, Zeller ?).—I notice in the Annual mention made of the above insect, and I trust you will excuse me for writing to you respecting it. First let me observe that Professor Zeller's remark, "I doubt whether the larva would accommodate itself to *Fragaria* except in captivity," seems to me to be at variance with his conclusion that *comariana* and *potentillana* are one species. I do not dispute their being so, but according to my experience, the Professor is certainly wrong in doubting that *Fragaria* is the food of *potentillana.* I have been looking through my memoranda, and find therein recorded my first capture of *potentillana* on the 23rd June, 1850. The insect was flying in some numbers over a strawberry bed in my father's garden near Liverpool. The insect being submitted to Mr. Doubleday, he gave it as his opinion that it was the summer brood of *comparana* or *Schalleriana ;* but when I found the imago appearing again in September in the same place, and that the two broods were exactly alike, and about equal in point of numbers, I felt convinced that it was a distinct species. The habits of the insect have been pretty well known to several of our Lancashire collectors for many years.

Potentillana is a most variable insect, and indeed, I would not now undertake to separate some specimens of it from *caledoniana* if mixed up with that species.—BENJAMIN COOKE, Stockport Road, Manchester, *March 28th,* 1870.

[The Hon. Thomas de Grey informs me that he breeds the *P. proteana* of Doubleday's list in abundance from *Comarum palustre.* He has never observed it on *Fragaria.* Mr. de Grey believes he has specimens of a species intermediate between *proteana* and *Schalleriana,* larger than the former, and having the appearance of being more thickly scaled and less glossy than the latter.—H. G. K.]

Description of the larva of Hypsipetes impluviata.—On September 11th, 1867, Mr. George Baker of Derby very kindly sent me several larvæ of this species feeding in curled-up leaves of alder. After they came into my care, I noticed that they lived and fed continually in concealment, which they managed to do either by uniting leaves together (somewhat after the manner of the *Cymatophoræ*), or else by curling one side of a leaf over the other.

The usual position in repose is a curve, the head being turned sideways round to the middle of the body; but, when a larva is exposed by being ejected from its dwelling, it loops with activity, pausing occasionally, and stretching its head in all directions in a most impatient manner, as if in search of another retreat. It is only when so stretched out that its actual length can be momentarily observed.

When full-grown, it is then seen to be about seven-eighths of an inch in length, and rather thick in proportion, the body very slightly depressed, of about equal bulk throughout, for it tapers but a very little just at each extremity.

In some, the ground colour of the back is pale purplish-grey, or brownish-grey, with the belly of the same; the head brown, freckled with still darker brown: the back of the second segment black, with the dorsal line running through it as a pale greyish line, but on all the other segments it is wider, black in colour, and thickest about the middle of each segment, suggestive there of an elongated diamond on some of them. The rather thick sub-dorsal line is of the pale ground colour, begins on the second segment, and is equally well defined throughout its entire length, by reason of the back above being freckled and suffused more or less with dark purplish-brown, especially around the thickest part of the dorsal line,—where, on each side of it, an indistinct dark wedge is thus formed with its base on the dorsal line, and its point directed outwards and forwards; besides the general clouding and darkening of the back, there is also a series of black wedge shapes that tend to define the upper edge of the pale sub-dorsal line much more clearly; these are placed at the beginning and end of each segment, the anterior one pointing backwards, and the posterior one forwards, while on the thoracic segments they become united and linear.

The side, as far as the spiracles, is freckled and clouded with dark purplish-brown, similar to the back, and a fine longitudinal line of the pale ground colour runs through it near the lower part: the spiracles are black, and followed by a broad stripe of the pale ground colour, and then a fine interrupted line of blackish; the tubercular dots black, each emitting a hair, and the pro-legs tipped with blackish.

In other examples, the ground colour is pale pinkish, ochreous, or flesh colour, and the markings are brown and much paler; the black wedge shapes almost, or even entirely, absent, and the dorsal line is interrupted at the beginning of the segments.

By the middle of October these larvæ had ceased feeding, and did not retire to earth, but remained motionless within their hiding places in the leaves, and so continued until the beginning of December, when they became pupæ therein.

The pupa is nearly half-an-inch long, rounded at the head, thick in the middle, the abdomen tapering to a point with anal spikes attached to the threads spun within the leaf; its colour is bluish-black, and it is entirely without gloss.

The perfect insects appeared from 22nd to 24th of May, 1868.—Wm. Buckler, Emsworth, *January*, 1870.

Note on the nomenclature of wing-nerves, and on the importance of the abdominal appendages in specific determination.—In the last part of the Stettiner Entomol. Zeitung (Jahrg. xxxi., p. 316), is an article by Dr. Hagen on the great difference of nomenclature used for the neuration of the wings in the various orders of insects, and, on the assumption of an undoubted fact that in all the orders the perfect insects and their nerves are formed after one analogous and common type, advocating the desirability of applying in every case the same name to each nerve or its branches. The practicability of the proposed system is illustrated by figures. "Now," Dr. Hagen says, "no one concerns himself about his neighbour, each is sovereign in his own domain." Besides drawing attention to this subject, I wish more particularly to advert to the following remark on other structural and specific characters.

"I have seen *Acentropus* in plenty. From the locality mentioned by Nolcken "and also among those found by Lenz on the sea-shore in East-Prussia, it is found "with remarkable brown-marked wings. Naturally, I do not stop here to decide "whether several species exist. In every case the examination of the anal appendices would afford certain data. I have always wondered that Lepidopterists "should ignore such remarkable structures, for, as far as I know, the slight essay in De "Haan's beautiful work remains entirely without imitation. The having to do only "with colour of wings, dots, streaks, spots, rows of dots and streaks of spots, has always kept me far from *Lepidoptera*. Linné, whose fame and name were first due to "his investigation of the *genitalia* of plants, knew also their difference and variety "in insects. Remarkably enough, he once said, if my memory is correct, '*Genitalium* "*disquitio displicet.*' Just now, I have cursorily looked over a great many *Lepidoptera*, "and am still more astonished that these parts are so neglected. Precisely in the "most difficult genera (*Argynnis, Hesperia, Noctua*), where the species are nearly "allied and often difficult to determine, they afford excellent differential characters. "Mr. Burgess is engaged here in the investigation of them in American species, and "his drawings and preparations delight me daily. I am convinced that this species-"embracing investigation will result in a real advance of science."

In the large *Lepidoptera*, the examination of the genital segments may be comparatively easy; but in the *Micro-Lepidoptera*, where the body is not only very small but is covered with scales, to determine the microscopic differences of the parts must be exceedingly difficult; and, as I apprehend that the removal and abrasion of the segments will be necessary, the value of the result, however satisfactory in itself as regards the specimen operated on, would be of small practical utility in judging of the specific identity or distinctness of other specimens of great general similarity not so examined. I do not say this to discourage examination, for the difficulty may be hypothetical; and it would often be very desirable to obtain some positive permanent structural character in combination of the slighter and variable ones of "colour, dots, streaks and spots," upon which hitherto, in descriptions of species, reliance has been placed. The researches in this direction of Boheman, Flor, and especially Fieber, with respect to *Hemiptera-Homoptera*, have brought to light a certain, definite and immutable character of the utmost value in separating species otherwise very similar. It should be mentioned, as a hint to workers, that, in this Order, the greater and more decisive differences are found in the male. Possibly with small *Lepidoptera* it may be found of advantage to examine the bodies while they are fresh and flexible. What revelations may be in store for us from this source of the gradation (or degradation) of species by natural selection or of its impossibility?—J. W. Douglas, Lee, 16*th May*, 1870.

Entomological Society of London, 6*th June*, 1870; F. P. Pascoe, Esq., F.L.S. Vice-President, in the Chair.

J. V. Jacques, Esq., of Bristol, was elected a member.

Mr. McLachlan exhibited the partially gynandromorphous example of *Brachycentrus subnubilus*, Curtis, noticed at p. 19 of this Vol.

Mr. S. Stevens exhibited living examples of *Ateuchus semipunctatus*, recently captured by him on the shores of the Adriatic. One of these had been placed in bruised laurel leaves when captured, but was proof against this generally-adopted method of killing *Coleoptera*.

Mr. Warwick King, present as a visitor, exhibited a collection of insects from the interior of Natal.

The Secretary exhibited a collection sent by Mr. Ansell from Kinsembo, S. W. Coast of Africa.

Mr. Müller exhibited gall-like swellings of the stems of juniper, found near Godalming; remarking on their apparent connection with the gall-making *Lepidoptera* of the juniper, bred by Herr Hartmann (vide Stett. Ent. Zeit., 1868, p. 109).

Mr. Butler read additional notes on the probable identity or distinctness of *Argynnis Niobe* and *Adippe*, especially with regard to Freyer's remarks on their earlier stages.

Mr. Crotch communicated "The genera of *Coleoptera* studied chronologically, part 2 (1802—21)."

Major Munn, present as a visitor, gave an account of his experience with the honey-bee, the result of many years' observation on its habits; and exhibited numerous anatomical drawings and specimens, in illustration of his theories. He was inclined to combat the opinions of Von Siebold and Dzierzon on the generation of the bee. He had found that the last eggs laid by the queen, or those laid by an old queen, invariably produced drones. According to his opinion, the queen-larvæ did not take nourishment in the ordinary manner, the alimentary canal ending in a *cul de sac*, but it existed and increased by means of absorption of the liquid contained in its cell, and in which it was immersed.

NOTES ON THE INSECTS OF STRATHGLASS, INVERNESS-SHIRE.

BY F. BUCHANAN WHITE, M.D.

In the summer of 1869, I paid a visit to Strathglass; and, as this district is almost unbroken entomological ground, an account of its insect-fauna may be interesting, and will, I hope, induce some adventurous collector to turn his back on Rannoch and explore further this productive glen. Should any one meditate a visit to Strathglass, I shall have much pleasure in assisting him with any information as to localities. &c.

Strathglass (the "grey valley") lies parallel to, and north of, the chain of lochs that form the Caledonian Canal, and begins a little to the west of Beauly. It is about 18 miles in length, and has on its north side three tributary valleys, which run nearly parallel to it. These are Glen Strathfarrar, Glen Cannich (the "valley of cotton grass"), and Glen Affrick (the "valley of greyish water"), the last being a continuation of Strathglass and of about the same length. All the valleys are narrow and bounded by high hills, whose lower slopes are covered in many places with forests of birch and pine. At the top of each glen the mountains attain their greatest height—one of the highest being Mām Suil (the "rounded hill of the eye," *i. e.* of the extensive view,) near the top of Glen Affrick, and about 3800 feet in height.

Fasnakyle (the "growing of the trees"), where my quarters were, is situated near the opening of Glen Affrick, and in some extensive birch woods; and my principal collecting ground was an area of one mile long by three broad—one mile along the river and three up the hills. The lowest part of this area was about 200 feet above the sea, and the highest about 2500 feet. Within this space almost all the species I captured in Strathglass occurred. A short description of the vegetation within this area will give an idea of a productive collecting ground in the Highlands. In the lower parts are woods of birch mixed with sallow, alders, and a few aspens, the undergrowth being heather, bilberry, with bracken and other ferns, and the whole surface of the ground rough and broken in the extreme, here rising into rocky hillocks, there cleft by the winter torrents—one of my sugaring rounds, by the way, being up the not-always-dry bed of one of these torrents. Here and there are marshy glades fragrant with bog-myrtle, and leading from one marsh to another are narrow deep natural ditches, often quite concealed by heather, and forming nice traps for the unwary collecter: more than once it was my fate to find suddenly one leg immersed in a couple of feet of ice-cold water, while the other remained high and dry, a sensation decidedly more exciting than pleasant. At about 800 feet the trees become less frequent (except beside the burns), and the heather and *Myrica* more exuberant, but becoming less so as we reach a height of 2000 feet, at which beds of dwarf birch (*Betula nana)*, cloud-berry (*Rubus chamæmorus*), and other alpine plants appear. Here, too, is a small deep loch (producing *Dytiscus lapponicus*, &c.), whose waters and banks were inhabited by several boreal insects.

In recording the results of my investigations of the *Lepidoptera* of Rannoch and Achilty, I mentioned all (or nearly all) the species met with, and by comparing these lists with the list of what I found in Strathglass, and with lists of the productions of other parts of the Highlands, I am led to the conclusion that, given the requisite amount of uncultivated ground and of natural wood, the fauna of nearly every part of the Highlands (especially north of the Grampians) will be found almost identical, and only modified in four respects, viz.:

1st—By the altitude of the mountains;
2nd—By the proximity of the sea;
3rd—By the apparently local situation of a few species, the cause of which is obscure;*
4th—By the longitude.

1. Of truly alpine *Macro-Lepidoptera (i. e.* species not found below a certain altitude) we have only about 8 or 10 species in Britain; and though many of these are at present known to have but few localities, it is probable that when all the lofty mountains have been examined, their range will be found to be co-extensive with the required altitude. It is natural to suppose that as we go north we should gradually find the necessary altitude (in Britain) becoming less and less; but in northern Scotland we are limited to so comparatively small an area, that it would require very careful observations to establish this. If, however, we were to take the case of a species common to the Alps, to the Scottish mountains, and to the Scandinavian fauna, and to carefully note the altitudes at which it was found as we proceeded towards the north, we would obtain a series of heights beginning at several thousand feet above the sea, and gradually descending to the sea level.

2. I have referred to the influence of the sea in a previous note (Vol. vi, p. 170), and several instances of this influence will be found in Mr. Norman's lists of the Forres *Lepidoptera.*

3. The local distribution of some few species will probably, when

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* "Who can explain why one species ranges widely and is very numerous, and why another allied species has a narrow range and is rare?"—Darwin, "Origin of species," p. 5.

the Highlands have been more thoroughly "worked," be found to be more apparent than real; though certainly the reason why some species, too conspicuous to be easily overlooked, are of local distribution, seems remarkable: for instance—the occurrence of *Erebia Medea* in some localities, and its absence in others of apparently the same nature and equally suited to it.

4. When the British *Lepidoptera* have been as thoroughly examined as has been the British Flora, we will no doubt find that certain species inhabit only the eastern parts of the country, and others only the western, as is the case with certain plants; but at present I do not think that we can with certainty affirm which species are only eastern and which only western, though at the same time we have good grounds for believing some species to be one and some the other. The Highlands have been as yet so unequally worked, that nothing can be said definitely on this point regarding the insects inhabiting them.

Lepidoptera in Strathglass.—The number of species of *Macro-Lepidoptera* noticed by me are as follows:—

Diurni.........	15	*Drepanulæ*	2	*Deltoides*......	1
Nocturni......	16	*Pseudo-Bombyces*..	5	*Pyralides* ...	11
Geometræ ...	67	*Noctuæ*	79	*Crambites* ...	11

No doubt in a better season than 1869 was, the number would be greatly increased. I now proceed to mention some of the rarer species. *Argynnis Euphrosyne* was, as would seem to be the rule, in all the Highland valleys of northern Scotland (*i. e.* north of the Grampians), as common as *A. Selene;* and *A. Aglaia* was by no means rare, though somewhat more local than the other two. The most universally distributed butterfly, however, was *Erebia Medea*, W.V., which absolutely swarmed in all the open marshy places in the woods, occasional individuals even coming into the garden. I noticed that this species appeared to have the limit of its range above the sea, at about 800 feet, while both *Cœnonympha Davus (Typhon)* and *Pamphilus* occurred at upwards of 2000 feet. Indeed, these two species, along with *Erebia Epiphron* (which, though probably a native of this district, was not found by me), seem to be the only British butterflies which inhabit the higher regions of the mountains; for *Vanessa urticæ* (with some other *Vanessidæ),* though often seen on the summits of high mountains, is probably only a chance visitant, whose strong wings and aspiring mind have carried him thither, and not a regular inhabitant, whose larvæ would be found. *Polyommatus Icarus (=Alexis)* is another species found at a good height, but considerably below that of *C. Davus*. *Chrysophanus Phlœas* and *Nisoniades Tages* both occurred, but were rare. The larvæ of *Cossus ligniperda* infested a few birch trees, and *Hepialus velleda*, *hectus*, and *sylvinus* occurred; *humuli* and *lupulinus* (rather a rare species in northern Scotland) being, as might have been expected, apparently absent. *Euthemonia russula* (♂) was rather common and widely distributed, and *Arctia plantaginis* very local and not abundant. A few larvæ represented *Demas coryli* and (with pupæ) *Orgyia fascelina*. *Venilia maculata* was not common; one specimen has the hind-wings of a much paler colour than the fore-wings. *Ennomos tiliaria* came to light, and was occasionally *seen* in the woods, and of *Dasydia obfuscata* three specimens (one larval) were taken in widely different localities; of these one occurred in a low-lying marsh, at night. One specimen of *Venusia cambricaria* was taken on August 4th. Of the genus *Acidalia*, *fumata* and *remutata* were the commonest, *aversata* and *bisetata* being rather scarce. *Macaria notata* could scarcely be called common, but was widely distributed in the woods, its favourite resting place being on or near the ground; it was also found in the garden, and *M. liturata* of course in the pine woods. *Fidonia pinetaria* turned up in several places, being, however, not very abundant, and generally in bad condition. Inverness-shire must therefore be added to Perthshire and Ross-shire as a habitat of this species: probably, however, it occurs in most counties of Scotland north of Perthshire. Five *Larentiæ* were represented, *salicata* by only one or two, but the others by many, specimens; *olivata* being, however, local. Though not found yet, *ruficinctata* should certainly occur in this district. *Emmelesia ericetata* was the only representative of its genus, and was both local and scarce. The *Eupitheciæ* were five or six in number, *pulchellata* larvæ having evidently been common on foxglove, though sought for at rather too late a season for many to be found; indeed, if my attention had not been turned that way by Mr. Longstaff having mentioned in a letter that he was finding the larvæ at Forres, I would have probably overlooked the species. Other species were *pumilata*, *satyrata (callunaria)*, &c. *Lobophora hexapterata* was taken on June 3rd close to the garden, and one larva (which produced a moth this spring) of *L. lobulata*.

Of the genus *Melanippe* I only saw *tristata* (2 or 3), *subtristata*, and *montanata*. *Coremia munitata* was scarce, and *ferrugata* not abundant. One specimen of *Phibalapteryx lapidata* came to light on Sept. 6th, but all my searching did not result in detecting the head quarters of this species. *P. lignata* was not rare, but local in a marshy place at night. Seven species of *Cidaria* were found, the best being *psittacata. C. miata* was taken on the 5th of June in good condition, but probably had hybernated. Very dark (almost unicolorous) varieties of *C. populata* were not very uncommon near Mām Suil, and the variety *albo-crenata* of *corylata* was common with the type in many places. *C. fulvata* was rare.

The genus *Acronycta* was well represented by seven species, several of which occurred both in the perfect and larval states, and all the seven were taken at sugar. The southern species *megacephala* appears to be a true native of northern Scotland, wherever its food-plant, *Populus tremula*, is at all common. *A. leporina* turned up occasionally at sugar, and a few larvæ were found on birch and hazel. Larvæ of *menyanthidis* were not very scarce, feeding upon *Myrica gale*, and, more rarely, upon heather and sallow. It has, I believe, been lately stated in "Newman's Entomologist" that *Myrica gale* is probably *not* the *common* food-plant of *menyanthidis*, but it certainly *is* the common food of the larva in the north, whatever it may be elsewhere. A few specimens of *myricæ* came to sugar. The time of the appearance of the imago of *myricæ* is said (and I believe correctly) to be from the middle of May to the middle of June. How, then, did it happen that both in 1868 and 1869 I never saw a specimen before the 30th of June, and that all the specimens I have taken were apparently newly emerged from their puparia? The female has dark grey hind-wings, a fact, which not being mentioned in Stainton's Manual, greatly elated me (for several days after my capture of one) with the idea of a new British species. Becoming, however, rather doubtful on the matter, I applied to my friend Mr. Norman for some extracts from Guenée's "Noctuélites," and thereby solved the enigma. I have never been able to find the larva of this species for all my searching for it. From what I have heard, however, it would appear that, not *Myrica*, but heather (or sallow) is the usual food-plant. Though I was unsuccessful in my search, yet the larva of *myricæ* was found in Strathglass this year (as well as at Forres and Rannoch); at least, Sir D. C. Majoribank's children described to me a caterpillar that they had found (and which had spun up) which could have been none other than that of *myricæ*. *Hydrœcia nictitans* was common on ragwort, and *micacea* came to light. Dark varieties (and intermediate forms) of *Xylophasia polyodon* were as common as the type, and abundant at sugar. On the 5th of July I had the great pleasure of taking a specimen of *Crymodes exulis* at sugar. Very few specimens of this insect seem to have been taken in Britain; I only know of 9 or 10 British specimens. To the proboscis of my specimen several orchid pollen-masses are attached. Though several good entomologists seem still uncertain on this point, I suppose that there is little doubt but that *Hadena assimilis*, Doubleday, is identical with *Crymodes exulis*, Lefebure. The common species *Mamestra brassicæ* and *Apamea oculea* were only represented by a single specimen of each; *M. anceps* (very dark) and *A. gemina* being the commonest species of their genera. A specimen of *Celæna Haworthii* was found at an elevation of 2000 feet. *Caradrina blanda*, which seems to be a rare insect in Scotland, was taken once or twice at sugar. These northern examples are lighter in colour and not so strongly marked as English ones. Only three species of *Agrotis* occurred; *segetum*, as seems to be the case in many Highland districts, being absent. *A. agathina* was found both in the perfect and larval states; not, however, commonly.

Of the genus *Triphæna*, *pronuba* was rare, and *orbona* very common and variable in the coloration of both fore and hind-wings.

The genus *Noctua* was represented by thirteen species, the less common being *glareosa*, *triangulum* (one specimen, very dark), *conflua*, and *neglecta* (all shades, from light ochreous to darkish red). *Orthosia suspecta* occurred sparingly, as did *Xanthia cerago*, and its variety *flavescens*. One specimen of the local *Euperia fulvago* came to light, thus adding another to the three Scottish localities that I have recorded in this Magazine. One larva of *Epunda lutulenta* and two specimens of *E. nigra* were all that I saw of that genus. *Aplecta tincta* appeared on June 26th, and lasted till July 26th, but was scarce; rather commoner was *Aplecta occulta* (June 30th), which came both to light and sugar. *Hadena* was represented by nine species, *adusta* being excessively abundant at sugar, and, as usual in the north, very dark in coloration. By the way, has the variability in the shape of the orbicular stigma in this species been noticed? It varies in my specimens from perfectly orbicular to long-pyriform. The other less common species were *glauca*, *contigua*, and *rectilinea*. The larvæ of *Plusia interrogationis* were found on heather, and the moths at rest on rocks during the day, and flying over heather.

Stilbia anomala occurred in great abundance on *one* heathery bank and, less commonly, at light. As usual, female examples were very scarce, only four or five examples having been found.

Pyrales, as might be expected, were not abundant. *Scopula alpinalis* was, of course, found on the higher hills, and one specimen of *S. decrepitalis* turned up in the last place I would have thought of looking for it—a deep ravine; but perhaps this is its usual habitat.

Among the *Scopariæ* were *muralis*, *truncicolella*, and *atomalis*.

Crambus and *Melia* were the only genera of *Crambites* that had any representatives. Of the first-named, eight species were more or less abundant, the scarcest being *pascuellus*—not a common species in Scotland, as far as my experience goes. *Margaritellus* was very common in marshy places in woods on the hills, and *pinetellus* not uncommon on dry banks. *Perlellus* was very abundant and very local among bracken in a sandy meadow, and varied excessively both in size and coloration; most of the examples I assigned to *Warringtonellus*, but Mr. Doubleday says that they are all *perlellus*. The species I recorded in my notes on Ross-shire *Lepidoptera* as *Warringtonellus* must therefore be referred to *perlellus*.

Of the *Tortrices* I took a good many species, some of which I have not yet determined. *Peronea caledoniana*, *Mixodia Schulziana*, and *palustrana*, were all tolerably common. *Phoxopteryx ramana* occurred on aspens, and *P. biarcuana* among heather. *Ephippiphora bimaculana* abounded in the birch woods, and *Pamplusia monticolana* in marshy ground half-way up Mām Suil, while the variable *Eupœcilia ciliella* was common (and as variable as usual) among heather.

The *Tineæ* that I took still remain untouched, so of them I will say no more, save that I took one specimen of *Depressaria ciniflonella*, and found the larvæ of four species near the above-mentioned loch on Ben Chearan. One of these was a *Nepticula* larva, in the leaves of *Rubus chamœmorus*. Of this (which is probably the same as one found by Wocke in the north of Europe, Finmark), I only found one larva, but the empty mines were not very rare. The other three species were found upon *Betula nana*—a *Swammerdamia* possibly new (*vide* Mr. Stainton's remarks in the Annual for 1870, p. 4), a *Lithocolletis* larva, which has produced *L. ulmifoliella*, and a *Nepticula* larva, from which Mr. Stainton bred *betulicola*,—the specimens of the latter being rather smaller than usual, and therefore possibly the smallest known Lepidopteron!

Coleoptera in Strathglass.—Dr. Sharp found several new species in this glen some years ago; and to him I am indebted for kindly giving me information regarding the localities of several species. I managed to find a few rarities, but probably a very small proportion of what would have been found by one knowing more of this order than I do. Among my captures (which were obligingly named for me by Mr. Bold) are the following, which I believe are worth recording.

Carabus glabratus, not rare at sugar (*C. catenulatus* and *violaceus* tormented me awfully, some patches of sugar having no less than ten of these wretches at one time). *Patrobus assimilis* and *Bembidium* *tibiale*. *Hydroporus griseo-striatus* in the loch on Ben Chearan, by no means rare in June. *H. 9-lineatus* scarce, and *incognitus*, Sharp, two specimens. *Colymbetes bistriatus*, *Agabus arcticus* and *Sturmii*, not rare. *Agabus Solieri*, one ♂ and one ♀ on Mām Suil; possibly the first occasion on which the ♂ has been taken in Britain. *Dytiscus lapponicus* in the loch on Ben Chearan, not common. Of the dozen or fourteen specimens that I took by repeated visits to the loch, only three were females. The loch is very rocky and free from vegetation, but in one corner it is muddy, and has a patch of large sedges, and two or three large loose rocks close to the shore. Beside and under these rocks I found the *Dytiscus*. *Haploglossa pulla*, one specimen. *Quedius lævigatus* under bark, and *Hydrocyphon deflexicollis* common on sallows. *Trichius fasciatus* common on thistle flowers, and *Cetonia ænea* at sugar. *Pyrrochroa pectinicornis*, one sitting on a stump. *Telephorus abdominalis* and *elongatus*, *Elater nigrinus* and *balteatus*, and *Diacanthus impressus*, all scarce. *Astinomus ædilis*, one specimen brought to me. *Otiorhynchus maurus*, *Magdalinus carbonarius*, and *Cœliodes ruber*, var., also scarce. *Zeugophora Turneri*, not uncommon on aspens close to the house. *Clythra 4-punctata*, one specimen. *Phratora cavifrons*, two or three, and of *Cryptocephalus labiatus*, one. *Donacia aquatica*, not common; &c.

Hemiptera in Strathglass.—In this order I was tolerably successful, being lucky enough to take several new species, and a few local or rare ones. *Nysius thymi* was common, but local, upon *Erica cinerea*. *Miris holsatus*, as usual in the Highlands, swarmed. *Phytocoris populi*, not common, upon aspen. *Ætorhinus bilineatus*, abounding on aspens. *Psallus querceti*, not rare on sallows; *Ps. Whitei*, rare, only taken at Rannoch before. *Ps. distinctus*, not common; and three specimens of a *Psallus* that Mr. Douglas considers may be *P. argyrotrichus*, Fieb., and consequently new to Britain. Unfortunately the specimens are too immature to admit of perfect assurance as to the species. *Agalliastes pulicarius*, not rare, and along with it *Agall. Wilkinsoni*. This species was supposed to be attached to *Maianthemum bifolium*, but neither that (which is not a Scottish species) nor any allied plant grew in the locality of the *Agalliastes*. *Lygus Spinolæ* among *Myrica*. *Zygonotus pselaphiformis*, ♂ and ♀, on birch trunks, not common. *Salda orthochila*, not rare, on dry banks, and *S. stellata*, *littoralis*, and *riparia*, at the edge of lochs and streams. *Nabis flavomarginatus*, not common. *Hydrometra odontogaster*, abundant, and *Costæ*, not common.

Of the genus *Corixa*, many species were abundant. *Corixa Sharpi*

(3 or 4) occurred in the loch on Ben Chearan (not "Hearag" as I, by mistake, informed Mr. Douglas, E. M. M., vol. vi, p. 249), and *C. alpestris* abundant in the same place. The other species included *C. venusta*, *Wollastoni*, *socialis*, *cognata*, *Fabricii*, *fossarum*, *præusta*, *Scotti*, *Douglasi*, &c. *Cymatia Bonsdorffii* was common, but confined to one or two pools. Among the *Homoptera* were also some good species, including two possibly new *Cixii*; *Delphax distinctus*, Flor (new to Britain), *Acocephalus bifasciatus*, *Iassus cruentatus*, &c.

Neuroptera in Strathglass.—Dragon-flies were scarce; the commonest being *Cordulia metallica* (see p. 38), more often seen than caught, but not rare about some lochs on the south side of the glen. *Trichoptera* were abundant, and possibly some novelties might reward a careful search. The best I took was *Limnophilus pavidus* (Hagen), of which I found two female specimens. Mr. McLachlan (who kindly named them and others for me) informs me that the claim of this species to be considered British, rested only on a single male specimen of dubious origin, in the British Museum. *Phryganea obsoleta* was not very scarce beside the loch on Ben Chearan, where also *P. striata** occurred.

Perth: *May 8th*, 1870.

A FRAGMENT OF A LIFE-HISTORY OF *ACANTHOSOMA GRISEA*.

BY REV. J. HELLINS, M.A.

All of us who have read Kirby and Spence, must remember their account, taken from De Geer, of the affection shown for its young by this "Field-bug," and their exhortation to the entomologist to put aside recollections of bugs which do not live in fields and trees, and to search upon the birch tree for so interesting a subject. Whether any one has ever searched, of course I cannot tell; but I am informed by those more learned in bug-lore than myself, that De Geer's account remained unverified—at least in print—until Mr. Parfitt furnished Messrs. Douglas and Scott with a note of the observations made by him a few years ago, on a female *Acanthosoma grisea*, which he found guarding most anxiously four young ones, somewhat advanced in growth (British Hemiptera-Heteroptera, p. 103). And as it has been my luck lately to be able to watch for some little time a similar family, I have thought that some account of what I saw would not be altogether without interest.

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* The examples of this species captured by Dr. White, and referred to here, are very extraordinary, scarcely larger than *P. varia*, very dark and strongly marked; did not the appendices present such certain characters, this form would probably be considered as representing a distinct species. On the contrary, some of the specimens of *P. obsoleta* are very large, equal to ordinary *P. varia*, and with the contrast of colours almost as great.—R. McLachlan.

On the 19th of last month, as I was poring over the outer twigs of the birch tree which I have in my garden—"convenient" for larva rearing—my eye fell on a reddish-brown bug sitting motionless on the under-side of a leaf, just at the level of my head. On looking at it more closely, I saw it was covering, as well as it could, a number of little oval greenish bodies—at first sight like eggs. Further examination, however, showed that these small creatures were the young bugs, in their first stage, I suppose, after leaving the egg, for the cluster of egg shells could be seen quite empty and transparent, under one side of the mother, while the young ones were mostly congregated under the other side. At this time then, the brood, numbering less than 20, were clustered together in two or three rows, some lying over the others, and really—but for their being silent and motionless—reminding one of a numerous litter of sucking pigs.

The parent bug showed no fear, and barely moved when I touched her, only shifting her legs and sloping her shoulders and back so as to protect the side on which the danger threatened; and I could not see that either she or the young ones were drawing their sustenance from the leaf on which they were placed; and, indeed, from their position, it was not possible to make out any part of the young ones, save their plump abdomens.

This state of things went on till June 23rd, when, on paying my morning visit to my family, I found the young bugs had advanced a stage in life; perhaps they had moulted, though I could see no cast skins; but anyhow, they had become larger in size, and were no longer lying motionless, but moving about very actively, and busily vibrating their antennæ. I now counted fifteen in the brood alive, and two that seemed in some way to have died, and remained sticking to the leaf; the empty egg-shells were gone, but whether accidentally or purposely removed, I cannot say.

The mother was now quite in a state of fuss; she moved about, felt everywhere with her antennæ, and, if I attempted to touch her brood, she fluttered her wings rapidly; but, with all this commotion, neither she nor the young ones moved away from the under-side of the leaf, on which they had hitherto been located, for two days longer; and during this period, if the sun shone out and the leaf were still, there was a great deal of running to and fro, but at night and when the wind blew roughly, the mother contrived to get them under her, and sat covering them as at first.

On 25th June, I found their native leaf quite deserted, and for a minute was afraid that the sparrows had been breakfasting off its tenants, but in another minute my eye caught the mother running on a leaf-stalk, and presently I could count up all the young ones, just setting off on their travels, and scattered about in fours and fives all over the branching twig, on which their leaf grew: they seemed busy exploring, and the mother ran from place to place feeling for them with her antennæ.

This I may say is virtually the end of my observations; for, although at this point I tried to see more, by bringing the twig, with the whole family on it, indoors, and enclosing it with a glass cylinder, yet, save that the young seemed to get some food from the sticky exudations on the birch-catkins, I saw nothing to reward my watching that I had not seen before. And besides, the young bugs *would* get into the water bottle, and drown themselves, notwithstanding I had plugged up its mouth as closely as I could; and the mother seemed to get disheartened and weary, till at last I sent her and four surviving young ones, with the dead bodies of six or seven more, to Mr. Douglas; but the bottom of the box unfortunately getting loose in its transit, he could find in it no more than the mother, and two dead young ones. I wish I could have ended my story more pleasantly, for I do not know that in all my life I was ever more interested in anything, than I was in watching this quaint little family; however, I understand there is good hope that someone else, better qualified to write about bugs, is to have the opportunity to see, and, let us hope, describe more accurately such a scene as I have tried to depict.

Exeter: 12*th July*, 1870.

THE GENERA OF *HESPERIDÆ* IN THE COLLECTION OF THE BRITISH MUSEUM.

BY ARTHUR G. BUTLER, F.L.S., &c.

I am indebted to Mr. W. F. Kirby for enabling me for the first time to compare Herrich-Schäffer's Classification of the *Hesperidæ* in his "Prodromus Systematis Lepidopterorum" with my own arrangement of this family in the National Collection, and I am surprised to find how nearly the two arrangements agree. I have a bone or two, however, which I must pick with Dr. Herrich-Schäffer with regard to some of the genera rejected by him; as to his new species, nobody could make them out if he tried from the line or two of description, without a locality in any case to lessen his bewilderment. I doubt not (as I sincerely hope) that Lepidopterists generally, will agree to omit them in their lists of species until they have been more clearly defined; if not, every Hesperidian Monograph will terminate in a kite-tail of undetermined species.

Hesperia, Fabr., is rejected because the first section of it is not typical, but as the first section does not agree with the description, it is evident that it was never intended to be typical, but was placed first for convenience sake: the description says, "antennæ sæpius uncinnatæ," and the *Lycænidæ* have nothing of the kind, but the second section begins with a hooked antenna, and is doubtless typical of the genus *Hesperia ; Pyrgus*, which has been suggested to me as synonymous with *Hesperia*, has no hook to its antennæ.

Leucochitonea, Wllgr. (part) does not seem to me to be identical with *Brontiades*. Hübn., and as I do not agree with Dr. Herrich-Schäffer in determining that an insect which I have never seen is not congeneric with *P. niveus* of Cramer I prefer to retain the latter in *Leucochitonea* until I have substantial evidence of its distinctness.

The genera seem chiefly to be determined from the spines on the legs, which appear to me by no means so safe a character as the antennæ, although I admit that in the genus *Pamphila*, the latter seem to vary *ad libitum ;* this is, however, the one genus in the family, which seems to be in a state of transition.

The genera and *named species* in the British Museum are as follows:—

GONIURIS, *Hübner*.

Verz. bek. Schmett., p. 104 (1816).

Typical species, *G. simplicius*, Stoll.

The following named species in the collection come into this genus— *G. Proteus*, Linn.; *decussata*, Ménétr.; *Dorantes*, Stoll.; *simplicius*, Stoll.; *Catillus*, Cramer; *cœlus*, Cramer.

Group without tails=GONILOBA (part) *Westw.*

G. pseudexadeus, Westw.; *Tityrus*, Fabr.; *Exadeus*, Cramer; *Socus*, Hübn.; *Lysidas*, Sm. Abb.

Sub-genus EUDAMUS, *Swainson*.

Zool. Ill., 2nd s., *Hesperidæ* (1833).

The species of this group are broader in the wing than in *Goniuris* proper, and are banded with white where the others are banded with yellow.

E. Orion, Clerck; *Brachius*, Hübner; *Chalco*, Hübner.

Species without tails.

E. Aunus, Fabr.; *Neis*, Hübn.; *Itylus*, Hübn.; *Vespasius*, Fabr.

Genus TELEGONUS, *Hübner*.

Verz. bek. Schmett., p. 104, n. 1096 (1816).

Typical species, *T. Tulus*, Cramer.

This is perhaps the true *Goniloba* of Westwood, it seems to differ sufficiently from *Goniuris* to be recognised; the characters at once apparent are the more suddenly hooked club to the antennæ, more convex outer margin to all the wings, and generally more elongated hind-wing, never possessing a tail.

The species named in the Museum collection are—*T. Enothrus*, Cramer; *Alector*, Felder; *fulgurator*, Walck.; *creteus* (syn. *Parmenides*) Cramer; *Habana*, Lucas; *Alardus*, Stoll.; *Talus*, Cramer; *Apastus*, Cramer; *Aulestes*, Cramer.

Brown and fulvous section.

T. Anaphus, Cramer; *Zestos*, Hübner; *Procus*, Cramer; *Nicias*, Fabr.; *avitus*, Cramer; *Midas*, Cramer; *Sebous*, Felder; *Euribates*, Cramer; *Ramusis*, Cramer; *Erytrus*, Cramer; *Broteis*, Cramer; *Astylos*, Cramer; *vulpinus*, Hübner; *Crameri*, Latreille.

Genus CHÆTOCNEME,* *Felder.*

Sitzungsber. Kais. Akad. Wissensch. Wien, Band 40, n. 7, p. 460 (1860).
Typical species, *C. corvus*, Felder.

This is the Indo-Australian representative of *Telegonus*, and seems to differ chiefly in the thickening of the club of the antennæ, especially just before its hook.

C. Thyrsis, Fabr.; *C. thrax*, Linn.

We possess several species allied to the type, but hitherto I have not succeeded in naming them.

Genus ÆTHILLA, *Hewitson.*

Descr. of 100 *Hesperidæ*, part 2, p. 55 (1868).

Typical species, *Æ. Eleusinia*, Hewits.

Æ. Elusinia, Hewits.; *Amphion*, Hübn.; *Bathyllus*, Sm. Abb.

The above group seems intermediate in character between *Eudamus* and *Achlyodes*.

SPATHILEPIA, *new genus.*

Typical species, *S. Clonius*, Cramer.

Antennæ of *Eudamus*, form of wings almost as in *Telegonus*, but the front-wings always more or less angulated below apex; anal angle of hind-wings clothed with long radiating spatulate scales in place of ordinary fringe: upper-surface colouration black or brown banded with white or yellow; under-surface marbled with bands and streaks, as in *Pyrameis Atalanta* and allies amongst the *Nymphalidæ*.

S. tamyroides, Felder, *Clonius*, Cramer, *Cellus*, Boisd. We have another genus allied to the above, which will require a name, but at present I have not succeeded in identifying any of the species belonging to it, unless the *Aristoteles* of Doubleday and Hewitson's "Genera" be referable to it.

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* Previously used as a genus of *Coleoptera*.—EDS.

UDRANOMIA, *new genus.*

Typical species, *U. Orcinus*, Felder.

Only differs from *Phanus*, Hübner (sect. of *Augiades*), in its shorter and more compact form, and *Pamphila*-like antennæ.

U. Orcinus, Feld.

Genus AUGIADES, *Hübner.*

Verz. bek. Schmett., p. 212, n. 1213 (1816).

Typical species, *A. Crinisus*, Cramer.

Section A.—*Phanus*, Hübner.

Verz. bek. Schmett., p. 114, n. 1240 (1816).

P. vitreus, Cramer; *P. leucomelas*, Hübn.

Section B.—*Phareas*, Westwood.

Gen. Diurn. Lepid., p. 515 (1852).

P. Talaüs, Linn.; *Gentius*, Cramer; *formosus*, Felder; *Alcmon*, Cramer; *Neleus*, Linn. (=*priscus*, Feld.); *cæleste*, Hewits.

Section C.—*Augiades*, Hübner.

A. Crinisus, Cramer.

Genus HESPERIA, *Fabricius.*

Ent. Syst, 3, Gloss. 1, p. 325 (1793).

Typical species, *H. exclamationis*, Fabr.

This is the *Ismene* of Swainson, and is very near the preceding. *H. exclamationis*, Fabr.; *Forestan*, Cramer; *Pisistratus*, Fabr.; *Keithloa*, Wllgr.; *Myra*, Hewits.; *gentiana*, Felder; *Chusa*, Hewits.; *subcaudata*, Felder; *Benjaminii*, Guér.; *œdipodea*, Swains.; *Helirius*, Cramer; *striata*, Hewits.; *Gomata*, Moore; *Jupiter*, Fabr.; *bixæ*, Linn.; *discolor*, Felder; *malayana*, Felder; *Sena*, Moore; *Alexis*, Fabr.; *Thridas*, Boisd.; *lugubris*, Boisd.; *Celænus*, Cramer; *Badra*, Moore.

Genus PYRRHOPYGA, *Hübner.*

Verz. bek. Schmett., p. 102 (1816).

Differs from all genera, excepting *Myscelus*, in the uniformly thickened hook to the antenna.

P. Phidias, Linn.; *Passova*, Hewits.; *Pionia*, Hewits; *Hadassa*, Hewits.; *Amyclus*, Cramer; *Telassa*, Hewits.; *Charybdis*, Hewits.; *Zeleucus*, Fabr.; *Thosus*, Cramer; *hyperici*, Hübner; *Acastus*, Cramer; *Verbena*, Butler; *Galgala*, Hewits.; *Nurscia*, Swains.; *Ocyalus*, Hübn.; *Mulciber*, Hübn.; *Xantippe*, Latr.; *Poesia*, Hewits; *Pityusa*, Hewits.; *Oneka*, Hewits.; *Machaon*, Hewits.; *Azeta*, Hewits.; *Patrobas*, Hewits.; *Zonara*, Hewits.; *Hadora*, Hewits.; *Hygieia*, Felder.

(*To be continued.*)

Note on some ambiguously British species of Coleoptera.—Motschulsky (Bulletin de la Soc. Imp. des Naturalistes de Moscou, 1868, No. 3), in his section of *Acratrichis* (*Trichopteryx*) in which the elytra are rather short, but slightly attenuated behind, describes two new species, from England only; one (p. 178), *punctatissima*, very close to *grandicollis* in form and colour, but shorter, with the posterior angles of the thorax less projecting, the antennæ rather short, testaceous with brown club, the legs testaceous, with the femora darkened, and the punctuation fine and close; the other (p. 179), of the form and colour of *fascicularis*, Gillm., but a third smaller and more convex, very shining, black, with a bronze reflection; legs testaceous, antennæ blackish, with the base slightly testaceous.

Mulsant and Rey (Ann. de la Soc. Linn. de Lyon, xvii, p. 383) refer *Simplocaria metallica*, Sturm, to England (possibly on account of the Stephensian *picipes*, its synonym),—a species distinguished by the striæ of its elytra being produced almost to the apex.—E. C. Rye, 10, Lower Park Field, Putney, S.W.

Note on Drilus flavescens, ♀.—It is stated in De Marseul's "Nouvelles et faits divers," No. 14, May, 1870, that M. Ad. Bellevoye has ascertained that the female of *Drilus flavescens* is not only found in *Helix nemoralis*, but also in several other species of *Helix*, amongst them being *H. pomatia*, *hortensis*, *ericetorum*, and *candidula*. M. Abeille de Perrin, in the same publication, communicates a hint from M. Lespès on the same subject; from which it appears that a good way to take many specimens of ♀ *Drilus* is to collect in February and March all the snails found in gardens, and to make with a penknife an opening at the extremity of the first spiral turn of the shell, opposite the mouth: if fragments stuck together in a kind of spider's web be then seen, there is no doubt of the presence of a pupa of *Drilus* ♀, which will not be long in coming to maturity.—Id.

Note on Donacia comari (*aquatica*, *Wat. Cat.*).—Dr. Kraatz writes to me that he is now persuaded that *Donacia comari* is a good species; and imagines that Suffrian has confounded little varieties of it with little *D. sericea*.—Id.

Note on a habit of certain Indian Coleoptera.—The Rev. A. B. Spaight, late Missionary to Northern India, has informed me of a fact frequently observed by him at Moultan, and which has, I believe, acquired additional interest from the circumstance of its being a disputed point amongst Naturalists.

It appears that certain large beetles belonging to the *Lucanidæ* and *Longicornia* are said to saw off small branches from trees in order to get at the sap upon which they feed. Mr. Spaight (who only began to study the habits of insects after he had left England) arrived in India under the impression that the jaws of these large beetles (*Lucanidæ ?*) were solely intended for burrowing,—indeed, he had been told almost as much; what was his surprise then, upon first meeting with them in their native haunts, to see the huge jaws clasping a branch round which at the same time the beetle was rapidly whirling, so that in a short time the branch fell to the ground completely sawn through; whereupon the insect immediately set to work to suck up the sap!

Being struck with this apparently new fact, Mr. Spaight paid particular attention to it, and noticed the same thing over and over again, so that he is quite sure about the correctness of his observations.—A. G. Butler, 17, Oxford Road, Ealing, 11*th July*, 1870.

The larva of Tipula oleracea, Linn. (crane-fly), injurious to Rye-grass.—To say that hand-in-hand with the stimulated production of any crop there appears an increased number of noxious insects, is but stating a truism. An instance of this kind has just come under my notice. There exists in this neighbourhood a well managed irrigation farm. Part of this land is at present used for the growing of rye-grass for green fodder, and the luxuriance of the crop in some parts seems a promising augury for a good return in hard cash in exchange for the labour spent on the land.

At present there seems to exist, entomologically speaking, only one drawback, which does to some extent check the growth of the crop. The fields are alive with the larvæ of *Tipula oleracea*, the intervening hedge rows and borders literally swarm with the perfect insects, and afford them a ready shelter for the deposition of their eggs, of which each female lays several hundreds. Bare spots along the borders in sections, where the crop ought to be just springing up, testify to the ceaseless damage done by these larvæ, which remain buried just underneath the surface all day, and are up and doing at night.

The rooks are busy at work to stay the plague, and ought to be protected; but to aid in the work of destruction I would suggest repeated rollings of the infected spots and the fallows with the clod-crusher, and above all a systematic clearance of the rank weeds and long grass along the hedges and ditches encompassing the estate, as these spots are regular breeding stations of this destructive crane-fly.—ALBERT MÜLLER, South Norwood, S.E., 30*th May*, 1870.

Abundance of pupæ of Callimome devoniensis, Parfitt, ♀.—I have annually at this time been wont to open the still intact galls of *Cynips lignicola*, Hartig, for the so far unsuccessful purpose of meeting with the expected male. At this time of the year two sets of this gall, both of last year's growth, are found on the tree, one constantly larger, showing either the exit hole of the female *Cynips*, or else the rough opening pecked by the tits for the extraction of the fat female larva; the other set of galls, owing to premature arrest of developement, is constantly smaller, without any visible opening and contains now the sculptured pupa of *Callimome devoniensis*, Parfitt, reposing on the larval skin of its victim in the shape of a shrivelled currant-like brown cake. Galls of this size I have never found opened by the tits; whether they are aware that their dainty food is absent therefrom, or whether the parasitic pupa is not to their taste, as we may suppose the perfect *Callimome* in its glittering coat of mail is not, actual experiment will have to prove. Suffice it here to record, that I have this day collected and opened literally hundreds of this smaller *C. lignicola* gall, in all of which the female pupa of *Callimome devoniensis* waited for her resurrection day, and that I have not seen one gall of this kind opened by the birds; nor have I been able to meet in the whole batch of these smaller galls with a single living *Cynips* larva, nor with a single male *Callimome* pupa.—ID.

Deilephila livornica at Dartmouth.—On each of the evenings of June 2nd and 3rd I captured a specimen of this insect, one flying over Red Campion, and the other over Valerian.—S. H. COLES, H. M. S. "Britannia," Dartmouth, *July*, 1870.

Deilephila livornica in Gloucestershire.—I sent a notice last year of *livornica* having been taken at Risington, in Gloucestershire—at least the remains were brought to me. On the 27th May, in this year, a perfect insect was taken one mile from this village, four miles from the place of the former capture. When it reached me it was much rubbed from being carried in the hand, but a strong large insect.—E. HALLETT TODD, Aldsworth, Gloucestershire, *June*, 1870.

Deilephila livornica near Kilkenny.—I beg to inform you of the capture, in the beginning of this month, of a fine specimen of *Deilephila livornica* in a green-house near the town of Kilkenny, Ireland. As I have not met with the insect before in Ireland, I thought this information might be interesting. I have the specimen in my collection.—ERNEST BRISTOW, Knockbridge Rectory, Belfast, *24th June*, 1870.

Deilephila galii at Exeter.—A beautiful larva was brought me last night by a labourer, who said he found it in a mangold-wurtzel field in this neighbourhood; I gave it *Galium saxatile*, vine leaves, and *Fuchsia*, and it immediately attacked the last with great avidity.—J. HELLINS, Exeter, *12th July*, 1870.

Dianthœcia irregularis (cæsii) bred in England.—It may interest your readers to know that the Rev. A. H. Wratislaw, of Bury St. Edmunds, has bred two specimens of *D. irregularis* from larvæ collected last year on *Silene otites* (Spanish Catchfly). Mr. Wratislaw has therefore the credit not only of re-discovering the insect, but of determining the food of the larvæ in this country. I may add, that Mr. T. Brown, of Cambridge, has also bred one specimen.—E. N. BLOOMFIELD, Guestling Rectory, *July 16th*, 1870.

Hepialus velleda near Maidenhead.—About half-past eight in the evening of the 9th instant, I noticed eight or ten moths flying among some nettles which fringed a small plantation in the corn fields between Maidenhead and Cookham. As they seemed too large for *lupulinus*, while their mode of flight was hardly that of the *Noctuæ* or *Bombyces*, I caught two, and found them to be *H. velleda*. One, the ordinary type,—the other, the well-known variety, *carnus*. Although Wood's "Index Entomologicus" gives Darenth Wood as a locality, recent writers have apparently considered the insect as an exclusively northern species.—A. H. CLARKE, 16, Furnival's Inn, E.C., *17th June*, 1870.

[*H. velleda* is not the exclusively northern species that our correspondent would seem to consider. It is known to occur in several southern localities beside Darenth Wood, and the variety *carnus* has been met with at Haslemere; see Ent. Mo. Mag., Vol. iii, p. 186.—EDS.]

Smerinthus ocellatus in pupa two years.—Do any of your readers remember an instance of this? I know that numbers of moths will remain in pupa over one season, but amongst hundreds of *ocellatus* bred and dug, I never had one till this year that passed a second winter in the pupa state.—E. HALLETT TODD, Aldsworth, *June*, 1870.

Lycæna Alexis deceived.—I have this day seen this butterfly fly towards a very small bit of pale blue paper lying in the grass and stop within an inch or two from it, as if to settle.

Whether it mistook the paper for an insect of its own kind or for a flower, cannot of course be demonstrated, but insignificant as this may appear, taking it in connection with the recorded fact of *Macroglossa stellatarum* visiting painted flowers on papered walls (Newman's Entomologist, iii., p. 6.), it may help to show that colour has, as Mr. Darwin teaches, a great deal to do in attracting insects to certain spots.—Albert Müller, 12*th June*, 1870.

A day at Windermere.—On Whit-Monday I had a trip to the woods about Braitwaite; insects were very scarce till about 6 p.m., then I took amongst young oaks *Tinagma stanneellum* and a few specimens of *Phoxopteryx diminutana* and *subuncana; Lobesia reliquana* was in very fine condition, and *Roxana arcuella* was freely on the wing. I beat from hazel *Lithocolletis Amyotella* and *emberizœpennella*, and by sweeping I obtained a few *Micropteryx mansuetella;* I then went to the field where I used to get *Coleophora deauratella*, and found it was planted with potatoes and wheat, so I turned to collecting larvæ of *Phlœodes geminana* on the *Vaccinium.*—C. S. Gregson, Rose Bank, Fletcher Grove, Liverpool, *June* 10*th*, 1870.

Captures of Lepidoptera, &c., at Witherslack.—My first visit this year was on May 25th, and, the sun being out for a short time, I turned into the woods at Grange, and soon met with *Catoptria aspidiscana*, of which I took ten, only one-half of them being fine. *Leucophasia sinapis* was flitting quietly about, and the pretty *Pyralis octomaculalis* was jerking freely about, and was only easily captured when in the act of rising out of the long grass; and *Thecla rubi* flashed past one leaving the impression that one had seen something, but was not quite sure, and the pretty little *Nemeobius Lucina* was just emerged from the pupa, some sitting on the young birch trees to dry their wings. *Venilia macularia* with its merry gambols enlivened the scene, the spot being a perfect bed of purple with the flowers of the columbine.

I then wended my way to Witherslack, and, though the evening was cold, I did pretty well: *Coccyx vacciniana* was flying in swarms over patches of bilberry, a few *Phoxopteryx biarcuana* and *uncana* were dislodged from the sallows, and *Penthina prœlongana* and *Tinea bistrigella* from the birch. I took six fine *Nemoria viridata*, and, when I reached the Inn, I found a fine *Ligdia adustata* was at rest on the window inside the bar. I should here mention that in this locality I always take a variety of *Incurvaria Oehlmanniella*, with the spots confluent on the inner margin and forming a broad streak, which is even conspicuous when the insect is on the wing; it seems to be a permanent variety in this spot. I finished my day's work by capturing three more specimens of *aspidiscana*, as they were flying at a prodigious rate at sunset.

My next visit was on June 9th; there was a strong wind, the weather seemed breaking, and it was bitterly cold in the evening: I was obliged to content myself with collecting in any sheltered corner, so I set to work collecting larvæ of what I supposed to be *Depressaria capreolella*, and whilst I was down on my knees close to a wall searching amongst the dead leaves of *Conyza squarrosa* and picking up a few larvæ of *Pterophorus lithodactylus*, a viper glided under my hand into a hole in the wall and escaped, as my net and stick were laid down, for I had not expected to find a viper asleep in such a place; then I went under a sheltered hedge on the moss-side, and took a few *Phoxopteryx siculana* and *biarcuana*, and by sweeping the sallow I took *Nepticula intimella*, and found *Nep. myrtillella* amongst the bilberry; the birches yielded *N. argentipedella*, and mixed underwood produced *N. anomalella* and *N. aurella;* then I turned to brushing the buckthorn and obtained a few *Bucculatrix frangulella* and some larvæ of *Gonepteryx rhamni* nearly full-fed. Here I also met with a few *Penthina prœlongana, Coleophora limosipennella,* and *C. gryphipennella, Ornix Loganella* off birch, and *Ornix guttea;* on capturing this last, I looked round for an apple-tree and there was one, although far away from any orchard, *Gelechia notatella* was started from sallow bushes, and on the road-side towards the inn, amongst *Veronica chamœdrys* I swept a few *Adela fibulella.* I then collected a few larvæ of *Depressaria carduella* for Mr. Stainton, who wished to study that species a little further on his setting board before publishing its history in the twelfth volume of the Natural History of the Tiniena.—J. B. Hodgkinson, 15, Spring Bank, Preston, *June 13th*, 1870.

Captures of Lepidoptera at Witherslack.—On the morning of Monday, the 13th of last month (June), I left home for Witherslack, in Westmoreland, for the purpose of having a few days' collecting in that rather noted locality. I arrived there about noon, and made the "Derby Arms" head quarters, where I was at once installed in Mr. J. B. Hodgkinson's room, which I found replete with everything necessary for killing and setting specimens, &c. Unfortunately, during the five days I spent there, the weather was most unfavourable, a good part of the time being so wet, that I could scarcely get out to do anything, whilst there was but little sun during the whole of my stay. This was the more annoying, as in nearly every other part of the country the weather was beautifully fine. As a consequence, my success was very poor compared with what it might have been under favourable circumstances. The following is a list of the best species taken. *Chortobius Davus* on a heathy marsh about a mile to the back of the Inn, *Lycæna Agestis* and *Alsus* on the grassy slope in front of the Inn, *Chœrocampa porcellus* a not uncommon visitor to sugared trees, *Lithosia mesomella* not uncommon among ling, *Arctia fuliginosa, Bombyx callunæ* (in larva state), *Nemoria viridata* beaten out of *Myrica gale, Iodis lactearia, Asthena luteata* and *candidata, Acidalia fumata* common on the heathy marsh, *Macaria liturata, Fidonia piniaria, Aspilates strigillaria* in plenty in the same locality as *A. fumata, Ligdia adustata, Emmelesia albulata, Eupithecia venosata, pulchellata, castigata, vulgata,* and *exiguata, Melanthia ocellata, Cidaria russata, Eubolia palumbaria, Tanagra chœrophyllata* common but local, *Leucania comma, Mamestra anceps, Apamea unanimis* two at sugar, *Gramesia trilinea* var. *bilinea, Rusina tenebrosa, Aplecta nebulosa, Abrostola urticœ, Ennychia octomaculata* on open ground as well as in the woods, *Pterophorus plagiodactylus* (?; this specimen is rather different from the usual type, Mr. Hodgkinson took a similar one on May 28th), *tephradactylus* and *tetradactylus* and others. I do not remember any locality in which I noticed so many *Pterophori* as here.—Geo. T. Porritt, Huddersfield, *July 16th*, 1870.

Under the sand on Yarmouth Denes.—Lying down by the side of the more elevated patches of Marram (*Ammophila arenaria*), and carefully drawing away the sand from round their roots, singular objects, closely resembling fungi of the genus *Clavaria*, became visible, attached by one end to the sheaths of the grass, and branched and sub-divided into rounded projections at the other end.

These are the silken tubes of the larvæ of *Anerastia lotella*, and are tightly stuffed with yellowish frass, except a small space next to the base, where is a chamber of tough silk, wherein the larva appears to reside when not engaged in devouring its favourite pabulum, the inner portion of the grass stem, which it hollows out, and of course withers.

The larva is very curious, yellow, tapering, with deeply divided segments (Mr. Buckler will, I hope, describe it). When full-fed it leaves the tube and spins a cocoon nearly, but perfectly disconnected. This also is very peculiar, being blunt or nearly flat at one end and pointed at the other, in fact, rather like a skittle pin. The pupa state lasts two or three weeks, the imago appearing in June and July.

Very different is the tube of *Crambus fascelinellus*, which I partially described last season, this being entirely composed of grains of sand loosely fastened together with silk, and therefore loose and very soft. It is very much larger too, some being with the large bag of loose frass four or five inches long, and the mouth frequently embracing the plant of *Triticum junceum* upon which the larva is feeding.

This plump, active, black spotted larva, with its ample tube, gives one a respectable idea of the larvæ of this difficult group, and also seems to give a key to their real habits.

Unfortunately it is so restless in confinement as to be very difficult to rear, and if disturbed from its tube disdains to make another. The cocoon which I have before described is much tougher and firmer than the tube, and, like it, lined with silk. It is at least three times as long as the pupa generally.

Still under the sand, and sometimes among the same grass, but more frequently among sea sand-wort *(Arenaria peploides)* and sea violet (*Viola Curtisii)* and at no great depth, are to be found at the same time (June and July) larvæ of *Agrotis cursoria* in plenty, with those of *A. tritici*, and occasionally the orange spotted ones of *A. præcox*, all of them stiff and lazy looking things when turned out, but active enough in all conscience when fairly aroused to a sense of their situation.

Doubtless these would be found in swarms at night, feeding especially upon *Arenaria peploides*, the gnawed appearance of which proclaims plainly enough that it is a favourite food.

I have simply given an idea of what is to be found under the sand at one period of the year, but if the time could be spared at other seasons, much more might be found under and upon the barren surface, not only among the other sandhill-*Noctuæ*, *Agrotis valligera*, *Leucania littoralis*, *Mamestra albicolon*, &c., but in the smaller groups; *Gelechia desertella* and *marmorea* swarm in myriads, *G. distinctella*, *velocella*, *umbrosella*, *mundella*, and *pictella*, are to be found, and *Catoptria microgramana* and *expallidana* are not very rare.—Charles G. Barrett, Norwich, *7th July*, 1870.

Description of the transformations of Erebia Medea (*Blandina*).—That I am able to offer a complete history of the transformations of this species is another example of the proverb, " Union is strength."

For not to one only, but to several of my friends, am I indebted for help. To Dr. White and Mr. Longstaff for the eggs, plentifully supplied to myself and Mr. Hellins; to Mrs. Hutchinson and to Miss Pasley for sending me the surviving larvæ reared by them over the winter, when I had myself entirely lost all my stock.

As far as I can ascertain, only four larvæ have come to maturity out of two hundred hatched last year, the vast majority dying in hybernation, and at the first spring moult; it can well be understood, therefore, how dear the satisfaction is won—after such loss—of securing this species.

The eggs were sent to us at the end of August, 1869; the larvæ hatched during the first week in September; fed and grew slowly till the winter; hybernated when between two and three lines in length; resumed feeding in March or April; and attained full growth between the end of May and the middle of July. The food has for the most part been *Aira præcox*, but Mr. Hellins has found that *cæspitosa* was eaten as the larva approached maturity. One imago has already emerged on July 15th.

The egg may be called large for the size of the fly, and is nearly globular—though somewhat ovate—in shape, and placed on end; the shell is glistening, and ribbed, but not deeply, with about thirty longitudinal ribs, and with very shallow transverse reticulations; in colour, pale greenish-yellow; afterwards, pale pinkish-grey, speckled with claret-brown.

The larva when small has the head large and rounded, is stout forwards, and tapers from the middle to the tail; is greyish in colour, with reddish-brown dorsal, sub-dorsal, lateral and spiracular lines, the lateral being broader than the rest; the spiracles black with another brown line below them; the skin covered, though not very closely, with short, stout, curved, pellucid bristles.

It hybernates at rather over the length of two lines; creeping down the blades of grass, and hiding in the thickest parts of the tufts. Soon after commencing to eat again in spring, the larva assumes somewhat of a greenish tint, but after a moult the grey returns again.

In May one was described which had then assumed the last dress. In length it was three-quarters of an inch, stout in proportion, thickest at about the fourth segment, the back tapering somewhat in a curve, the belly flattened, with the prolegs placed well under it; the head globular, scarcely narrower than the second segment; the anal segment bearing two not very prominent blunt points: each segment bearing on the back five transverse ridges, studded with minute raised warts, emitting fine short tapering bristles; the head also covered with still more minute bristle-bearing warts. The ground colour is pale drab, the warts being pale whitish-brown; the dorsal stripe is blackish-brown, most intense on the hinder segments, and enclosed by two lines of a paler drab than the ground colour; there is a broad sub-dorsal stripe of paler drab, growing narrower as it approaches the anal point, edged above with a greenish-brown thread, and below with blackish or brownish dashes, that almost form a continuous line, the interruptions occurring at the beginning of each segment; below this come two thin pale lines, above the lower of which are situated the circular black spiracles, each in a little puffed eminence; this lower line in fact forms a ridge, edged below with an interrupted brown line; the belly and legs are of a somewhat warmer tint of the ground colour of the back.

The larva thus described continued to grow till June 4th, when it was seven-eighths of an inch long, and stout in proportion, with its back deeper in colour than the sides; and presently after this its colouring grew paler, with a pinkish suffusion spread over it, and by June 22nd it had changed to a pupa, unattached, but placed in an upright position amongst the grass near the ground.

Throughout its whole larval life this species is very quiet, and even sluggish.

The pupa is nearly five-eighths of an inch in length, the wing-cases long, the abdomen plump, thickest in the middle, tapering to the tail, and ending in a blunt flat spike; the back of the thorax is rounded, the head and eye-pieces prominent.

At first the head, thorax, and wing-covers were semi-transparent, and of a pinkish-grey tint, the abdomen ochreous, with dark dorsal stripe and other lines, and spiracles also as in the larva; but by July 10th, the eyes became black; the thorax, antennæ-cases, and wing-covers, after passing through an opaque cream-coloured stage, finally changed to a dingy dark pinkish-brown.

The butterfly, a very fine male, came forth on July 15th; but at the present date Mr. Hellins has a larva only just beginning to change.—WM. BUCKLER, Emsworth. *19th July*, 1870.

Postponement of Dr. Staudinger's visit to England.—Dr. Staudinger, who has purchased the rich collection of *Lepidoptera* of the late Herr Julius Lederer, and has lately been to Vienna to superintend its removal to Dresden (where it has now arrived in good order), finds that he shall now be unable to visit England this summer, but he hopes with certainty to be able to come over here *next year*. The new edition of the catalogue is now in the press.—H. T. STAINTON, Mountsfield, Lewisham, *July 8th*, 1870.

Obituary.

A. H. Haliday.—With profound regret we announce the decease of this gentleman, early in July, at Lucca, in Italy, which town he had since many years made his home. A more extended notice of his life and works will probably appear hereafter in our pages.

Alfred Haward.—The Entomologists of London have to lament the premature decease of Mr. Haward, who was well known among Coleopterists, and universally respected for his genial and thoroughly unassuming disposition. He died at his residence, near Croydon, about a fortnight after joining the Entomological Club on the 1st of July last, at their excursion to Weybridge, and we imagine no one then present had any idea that his end was so near. Mr. Haward's business occupations always prevented him giving full scope to his bent for entomology; but of him it can truly be said, that no man was more free from the petty jealousies that too often render our favourite study ridiculous in the eyes of the uninitiated; and, as a consequence, no man had fewer enemies.

ENTOMOLOGICAL SOCIETY OF LONDON, *4th July*, 1870; A. R. WALLACE, Esq., F.Z.S., President, in the Chair.

The Rev. F. A. Walker, of Wanstead, and E. M. Seaton, Esq., were elected Members.

Mr. Meek exhibited three species of *Dianthœcia* from Ireland, viz., *compta*, *conspersa*, and *Barrettii*; also, from the Isle of Man, *D. conspersa*, and an insect which Mr. Stainton considered to be a peculiar dark variety of *Gluphisia crenata*, a very rare British species.

The Hon. T. De Grey exhibited examples of *Oxyptilus lœtus*, from Brandon, Suffolk.

Mr. Tegetmeier sent for exhibition examples of nature-printing as applied to Butterflies and Moths. These remarkably fine exponents of this method were on sale by a well-known London firm of printsellers, who had been under the idea that they were produced by some new process of chromo-lithography.

Mr. Blackmore exhibited *Lepidoptera* and *Coleoptera* captured by him at Tangiers during last winter. Among them was a long series of the true *Anthocharis Eupheno*, Linné. A beetle, *Pimelia scabrosa*, was remarkable for its monstrous antennæ, these organs being furcate.

Mr. F. Moore exhibited cocoons of a species of *Sagra* from Bombay, collected by Mr. Newton. These cocoons were placed, many together, in large galls, or swellings of the stems, of *Cocculus macrocarpus*, a creeping plant.

The President read an extract from a letter from Mr. Everett, from Sarawak, remarking on cases of mimicry in some spiders and caterpillars, these creatures having a most deceptive resemblance to pieces of bird's dung.

Mr. Müller exhibited galls on *Ammophila arundinacea* found by Mr. Trail, near Aberdeen.

Prof. Westwood made some observations on certain minute *Acari*, especially with reference to a species which causes the minute galls on the leaves of the pear trees. This species, together with that infesting the buds of black-currant, and others, formed a distinct group distinguished by the possession of only four legs, and he proposed to institute for their reception a genus under the name of *Acarellus*, the pear species being *A. pyri*. Mr. Müller suggested that these forms were identical with those described by Dejean under the name of *Phytopus*.

Mr. Jenner Weir communicated "Further observations on the relation between colour and edibility of *Lepidoptera* and their larvæ."

Mr. A. G. Butler read a "List of species in a collection of Butterflies sent by Mr. Ansell from Kinsembo, S.W. Africa."

Mr. H. W. Bates read "Contributions to the Insect-fauna of the Amazons (*Coleoptera; Longicornia*, Fam. *Cerambycidæ*).

Mr. F. Walker communicated a "List of *Hymenoptera* collected by Mr. J. K. Lord in Egypt and Arabia."

ON CERTAIN BRITISH *HEMIPTERA—HOMOPTERA*.

BY JOHN SCOTT.

(*Continued from p.* 29.)

Descriptions of new species of the Genus *Liburnia*, Stål.

Species 6.—LIBURNIA SCOTTI.

Delphax pallidulus, Marshall, Ent. Mo. Mag., i, 201, 3 (1865).
Kelisia Scotti, Fieb. (M.S.).

Developed form, ♂ and ♀. Pale ochreous. *Abdomen* yellow, genital segment posteriorly snowy-white.

Head: cheeks, ocelli, and a spot lower down next the inner margin, black.

Thorax: pronotum with a small black spot at the posterior angles. *Elytra: corium* with an ovate black spot at the apex, or continued as a more or less broad line along the middle nerve, as far as the transverse nerves. *Sternum* ochreous. *Legs* ochreous. *Claws* dark brown.

Abdomen pale ochreous, margins of the segments above more or less black; genital segment snowy-white.

Var. a. A somewhat triangular spot at the apex of the clavus, a short, narrow streak along the suture near the base, and an oval spot at the apex of the corium black.

Var. b. Nearly the entire elytra black, the oval spot at the apex darkest; the entire margin, a patch near the base of the clavus, and another in a line with the transverse nerves, pale ochreous.

Length 1¼—1¾ line.

This is not, as was supposed by the Rev. T. A. Marshall at the time he described the insect, the *D. pallidulus*, Boh. The latter insect is smaller, paler, and without a vestige of dark markings on the elytra. We have compared it with a true type of the insect, described by Boheman, kindly forwarded to us by Dr. Stål, to whom we would here express our thanks for this, as well as for types of other of Boheman's species.

Local, but abundant where it occurs. Near Leicester (Marshall); Glanvilles Wootton (Dale); Sallow pit, Lee, and Abbey Wood Marshes, on *Arundo phragmites* in September and October.

Var. b is much rarer than the other forms.

Species 13.—LIBURNIA BOLDI, *n. s.*

Undeveloped form, ♀.

Head: ***crown*** yellow, the two basal foveæ distinct and somewhat deep: ***keels*** white, interstices black, as are also those of the forehead. ***Face*** and ***clypeus*** yellow: ***keels*** of the former white, the middle one on each side, and the side ones interiorly narrowly margined with black. ***Antennæ*** brownish-yellow. ***Eyes*** brown.

Thorax: ***pronotum*** and ***scutellum*** yellow, with a greyish shade, ***keels*** distinct, paler than the disc, side keels of the former almost reaching to the posterior margin. ***Elytra*** yellowish-grey, barely covering half of the abdomen, posterior margin rounded, nerves distinct but not prominent, nor granulated: ***clavus***, apex with a short, narrow, dark brown streak. ***Legs*** yellow, with a slight fuscous shade: ***thighs***, third pair, with a black longitudinal streak on the upperside; ***claws*** black.

Abdomen above, brownish-yellow, darker on the sides, side margins orange-yellow, exterior margin of the segments black, underneath black or pitchy-brown, margins of the segments orange-yellow, genital segments brown.

Length 1 line.

Most nearly allied to *D. distincta*, Flor, but the face between the keels is not black, the elytra not so yellow, nor the marginal nerve white, as in that species. On the other hand *distincta* is without the short dark brown streak at the apex of the clavus.

A single ♀ example of this insect was captured by Mr. T. J. Bold, after whom we have much pleasure in naming it, in Seghill Dene, near Newcastle-on-Tyne, in May.

Species 14.—LIBURNIA CAPNODES, *Fieb.* (M.S.).

Developed form, ♀. Keels of the head and face concolorous.

Head pale brownish-yellow; *crown*, the three foveæ distinct, the two basal ones deepest. *Face*, *clypeus*, and *cheeks* pale brownish-yellow. *Antennæ* pale brownish-yellow, 2nd joint somewhat fuscous. *Eyes* brown.

Thorax: *pronotum* and *scutellum* pale brownish-yellow, side keels of the former curved round just beyond and running parallel with the posterior margin of the eyes; keels of the latter fine but distinct, disc depressed posteriorly. *Elytra* pale smoky-yellow, almost transparent; all the nerves brown, distinctly and regularly granulated with black: *clavus*, apex of the marginal nerve blackish. *Legs* pale fuscous-yellow; *tarsi*, apex of the 3rd joint and claws brown.

Abdomen above, dark brown, paler towards the apex; underneath, brownish-yellow, lower margins of the segments more or less broadly black, segments themselves with two or three scattered black punctures; genital segments and ovipositor brownish-yellow. Length 1½-line.

Unlike any other species of the genus, and will be at once recognised by the uniform brown nerves, and minute, but distinct, black granules thereon.

A single ♀ example taken somewhere in this neighbourhood in October, 1863, but the locality not recorded.

Species 15.—LIBURNIA SIGNORETI, *n. s.*

Undeveloped form, ♂.

Head yellow, with a slight fuscous shade; *crown*, the three foveæ distinct, the two basal ones deepest. *Face* and *clypeus* yellow, *keels* slightly paler, middle keel of the former furcate on the forehead, a little above the lower margin of the eyes; *cheeks* yellow; *ocelli* black. *Antennæ* yellow, with a slight fuscous shade, 2nd joint nearly twice as long as the 1st, reaching to beyond the clypeus suture. *Eyes* black.

Thorax: *pronotum* yellow, with a slight fuscous shade, *keels* distinct, side keels curved outwardly and terminating before reaching the posterior margin; *scutellum* yellow, with a slight fuscous shade, keels distinct, apex finely wrinkled transversely. *Elytra* pale fuscous-yellow, reaching to beyond the apex of the abdomen, and somewhat narrowed posteriorly, posterior margin rounded; nerves brown, prominent, with distinct darker granules placed somewhat thickly and at regular intervals, the 1st nerve, next the anterior margin, as far as the bifurcation, without or with only one or two granules. *Legs* dark fuscous; *claws* black.

Abdomen black, base broadly yellow, last segment margined with white; genital segment black. Length 1 line.

Rather larger and stouter than *D. adela*, Flor, to which it is allied, but the distinct dark granules on the elytra, and the different form of the styloid processes easily distinguish it from the last named.

Taken in the marshes near Abbey Wood, in June, and named after Dr. Signoret, for his great kindness in assisting us by the loan of examples of several species of this genus.

Species 17.—LIBURNIA MELANOPACHYS.

Delphax melanopachys, Fieb. (M.S.).

Undeveloped form, ♂.

Head: crown clear brown, the three foveæ deep and distinct, *keels* acute and prominent. *Face* (except the forehead), *clypeus*, and *cheeks* black. *Antennæ* clear brown, 2nd joint about 1½ time longer than the 1st.

Thorax: pronotum clear brown, *keels* acute and prominent, posterior angles broadly black; *scutellum* clear brown, keels distinct, sometimes the middle keel and a narrow margin on either side, especially towards the apex, blackish; sides, beyond the side keels, black. *Elytra* about two-thirds the length of the abdomen, lacquer-yellow, shining, somewhat transparent, nerves prominent, unpunctured; posterior margin rounded. *Sternum* black. *Legs* yellow; *tarsi*, 1st and 2nd pairs, brown, 3rd, yellow.

Abdomen above, pitchy-brown; underneath black; genital segment black.

Length, ♂, 1 line.

Altogether a larger species than *L. venosa*, to which it bears a great resemblance, but it is at once to be distinguished from it by the characters on the pronotum and scutellum, as given above.

The peculiar lacquer-yellow colour of the elytra is only met with, at least amongst British species, in *L. venosa*, and the present insect, but in the former it is not nearly so clear as in the latter.

The discovery of this interesting species is due to Mr. T. J. Bold, who took a single ♂ specimen in Gosforth Woods in October.

Species 25.—LIBURNIA FIEBERI, *n. s.*

Undeveloped form, ♂.

Elytra: posterior margin with two white oblong spots, the nerves *faintly* spotted with black.

Head: crown yellow, the three foveæ distinct, basal ones deepest; forehead yellow. *Face* fuscous-black; *keels* yellowish, base and apex narrowly margined with yellowish, and on each side of the middle a transverse yellowish line; *cheeks* fuscous-black. *Antennæ* yellow, 2nd joint stout, somewhat brownish towards the apex.

Thorax: pronotum brown, beyond the side keels black, posterior margin brown; *keels* acute, prominent; *scutellum* brown, beyond the side keels black; *keels* acute, prominent. *Elytra* pitchy-brown, not covering half of the abdomen, posterior margin truncate, angles rounded; *clavus* yellowish-white, scutellar margin narrowly pitchy-brown, apex with a large, somewhat oval, black spot; *corium*, posterior margin white, divided in the centre by a black spot, nerves faintly spotted with black. *Sternum* dark brown. *Legs* pale fuscous-yellow; *tibiæ*, 1st pair slightly darker before the apex; *thighs*, 3rd pair, piceous; *tibiæ* fuscous-yellow, darkest towards the base, apex and spines pale yellow; *tarsi* yellow, 1st joint, except the apex, pale fuscous.

Abdomen above, brownish-yellow, with a black streak along the sides; side margins black, with a small yellow spot at the lower angle of each segment; genital segment yellow, sides piceous; underneath black, genital segment yellow.

Length 1 line nearly.

Undeveloped form, ♀.

Very similar to the ♂ in all respects, except that the posterior margins of the segments of the abdomen, on each side of the dorsal line, are black. Length 1 line.

Larger than *L. lepida*, and at once to be distinguished from it by the absence of the minute white spots on the pronotum, and the less prominent black spots on the elytra.

We know of only two examples: one (♀) taken by Mr. T. J. Bold, in Gosforth Woods, near Newcastle-on-Tyne, in October; and one (♂) taken at Abbey Wood, in July (Scott).

Species 29.—LIBURNIA NIVEIMARGINATA.

Delphax thoracicus, Marshall, Ent. Mo. Mag., iii, 269 (1867).

Undeveloped form, ♂.

Elytra black, posterior margin white. ***Abdomen*** black, last segment above, and the genital segment, margined with white.

Head brown; *crown*, the two basal foveæ distinct but not deep, the anterior one faint. *Face* and *clypeus* dark brown; *keels* paler, on the forehead almost obsolete; *cheeks* brown. *Antennæ* brownish-yellow.

Thorax: pronotum white, the anterior margin brown; *keels* distinct; *scutellum* yellowish-white, middle keel more distinct than the side ones. *Elytra* black, shining, half the length of the abdomen, posterior margin rounded, white, nerves prominent. *Legs* fuscous-brown; *tibiæ* and *tarsi* paler, 3rd joint of the latter, black.

Abdomen black, shining, margin of the last segment above, white, side margins very narrowly pale; genital segment above, and the posterior margin on the sides, narrowly margined with white.

Undeveloped form, ♀.

Scutellum yellowish or white. ***Elytra*** pale brownish, posterior margin white. ***Abdomen*** brown, darkest on the sides. All the other characters as in the ♂. Length, ♂, 1; ♀, 1½ lines.

Most nearly allied to *L. leptosoma*, but it is larger than that species, and differs from it in the absence of the pale sutural region of the elytra, and by having the scutellum white.

Taken by the Rev. T. A. Marshall at Wimbledon, in September, on marshy places. He referred it to the *D. thoracicus*, Stål., but as that insect is merely the developed form of the ♀ of *mæsta*, Boh., the above name has been proposed instead thereof.

Species 33.—Liburnia Dalei, *n. s.*

Undeveloped form, ♂.

Head yellow: *crown*, the two basal foveæ distinct, the anterior one appearing as a deep puncture. *Face* widest below the eyes, the middle keel distinct but not prominent: *clypeus*, middle keel distinct. *Antennæ* yellow, second joint twice as long as thick at the base. *Eyes* purplish.

Thorax: *pronotum* yellow, *keels* distinct; *scutellum* deep black, shining, keels fine but distinct, sides and apex narrowly yellow: *elytra* yellow, not covering half of the abdomen, posterior margined rounded, nerves not granulated. *Sternum* yellow: *mesosternum*, sides black, apex narrowly yellowish. *Legs* yellow; *coxæ* of all the pairs anteriorly black: *tarsi*, apex of the third joint and claws black.

Abdomen black, shining, side margins and a very narrow dorsal line yellow, two last segments clear yellow; genital segment above clear yellow, sides and underneath black. Length ¾ line.

♀ Unknown.

We are not acquainted with any species with which this insect is likely to be confounded.

The description has been drawn up from a single ♂ specimen in the collection of Mr. J. C. Dale, who has at all times been ready to aid and assist us, and after whom we have much pleasure in naming it. It was taken at Lulworth, Mr. Dale believes, in August, 1832.

Species 38—Liburnia Douglasi.

Delphax Douglasi, Fieb. M.S.

Undeveloped form, ♂.

Head: *crown* and forehead yellow; the three foveæ on the former distinct but shallow. *Face* and *clypeus* black, the former between the keels irregularly spotted with white; *cheeks* black, along the margin of the face, with three or four white spots. *Antennæ* brownish-yellow.

Thorax: *pronotum* yellow, *keels* somewhat indistinct; *scutellum* pale brown, beyond the side keels dark brown, keels distinct but not prominent. *Elytra* brown, more than half the length of the abdomen, posterior margin almost truncate, angles rounded, nerves fine but distinct, not granulated. *Legs* yellowish or pale brownish-yellow, with a fuscous shade.

Abdomen black; genital segment above brownish-yellow, sides black.

Length ¾ line.

Totally unlike either of the two other species belonging to this section, and at once recognizable by its brown elytra. A single ♂ example was taken by Mr. Douglas at Folkestone, in September, 1862.

Genus 4.—DICRANOTROPIS, *Fieb.*

Head almost square.

Undeveloped form, ♂. Keels of the head and face white; interstices black. Crown, pronotum and scutellum greyish- or whitish-yellow, the latter with a black spot beyond the side keels. Elytra greyish-white, apex of the clavus with a short black streak. Abdomen black, with a narrow more or less interrupted white dorsal line. Genital segment large, the sides much projected and black; upper portion white ....1. ***hamata***, Boh.

A common species and easily recognised by its curiously formed genital segment.

Genus 5.—STIROMA, *Fieb.*

Head transverse, the anterior margin of the crown but a little way in front of the eyes.

Undeveloped form, ♂. Head, pronotum and scutellum yellow, the two latter somewhat brownish. Face at the base with a black cuneate patch on each side of the furcate middle keel. Pronotum and scutellum each with a black patch beyond the side keels, posterior margin of the former pale. Elytra greyish-yellow, not covering half of the abdomen. Abdomen piceous, on the back pitchy-brown........... ...1. ***affinis***, Fieb.

Undeveloped form, ♂. Face at the base with a black patch on each side of the furcate middle keel, the patches generally united into one. Scutellum only with a black patch beyond the side keels. Elytra as in the former species. Abdomen castaneous, darker on the sides ....2. ***nasalis***, Boh.

The easiest character by which to separate these species is in the markings on the pronotum and scutellum, whilst an examination of the structural differences of the styloid processes will establish their distinctness. In the former, the apex of these is somewhat of a fish-tail shape, and in the latter aculeate and curved.

Undeveloped form, ♂. Head and pronotum bright yellow, the latter frequently darker between the side keels next the posterior margin. Scutellum and elytra black, the latter covering more than half of the abdomen. Abdomen black or yellow. Genital segment above generally brownish or yellow.........3. ***pteridis***, Boh.

Not readily confounded with any species that we know. The middle keels of the face are almost obsolete.

Undeveloped form, ♂. Head yellowish or brownish-yellow. Keels of the head and face white. Pronotum generally white. Scutellum yellow. Elytra more or less dark piceous, very narrowly somewhat paler along the scutellar region, posterior margin white. Abdomen black. Genital segment black, posterior margin above white......... ....4. *albomarginata*, Curt.

This is the *D. adelpha* of Flor. It is easily separated from similar species of *Liburnia* through its having two middle keels to the face.

Undeveloped form, ♂. Pronotum white, anterior portion clear pale yellowish-brown. Scutellum clear yellowish-brown, sides and apex white. Elytra clear pitchy-brown, shining, posterior margin white. Abdomen black, margin of the last segment white. Genital segment on the sides black, above and posterior margin white ... .5. *mœsta*, Flor.

Somewhat larger than the last species, but extremely difficult to separate from it. The different form of the opening of the genital segment, when viewed from behind, the white margin to the last abdominal segment, and the white upper portion of the genital segment are the most striking outward characters whereby to distinguish this insect from *S. albomarginata*.

My task, as far as my knowledge of the species of *Delphacidæ* of this country is concerned, is now completed; and, although my investigation of this family, both anatomically and otherwise, has enabled me to treble the number of species hitherto recorded as British, yet I am far from believing that these are all its representatives to be met with in this country. Their minute size and great resemblance to each other in many instances (as noticed below), and their extremely active habits, rendering them so difficult of capture in the net, have led me to this conclusion. From Ireland I have not seen a single individual; and as to Scotland, whence I believe many additions will yet come, the few observers who have done anything have either been limited as to time, or merely taken such species as fell in their way while collecting insects of other Orders. Wales pairs with Ireland, and the South-coast and Isle of Wight only return one or two members.

Northumberland furnishes its quota, but the London district as yet bears off the palm, and Dorsetshire "labors hard to swell the list with the good things it yields." Except Berwickshire, these are the only places from which I have seen any examples of the *Delphacidæ*, and what may be expected from the yet unexplored parts, I leave my readers to judge for themselves.

Amongst the continental species most likely to be added to our lists in this group are *Delphax crassicornis*, Fab. (see genus 2, p. 24); *Liburnia stenoptera*, Flor, closely allied to *smaragdula* and *unicolor*; *L. hyalinipennis*, Stål, like a small *neglecta*; *L. paryphasma*, Flor, belonging to the *leptosoma* group; *L. straminea*, Stål; *L. modesta*, Fieb.; *L. flaviceps*, Fieb.; *L. limitata*, Fieb.; *L. protrusa*, Flor; *L. paludosa*, Flor; *L. flaveola*, Flor; *L. spinosa*, Mink (somewhat like *L. cognata*, but with a black abdomen, or with a row of yellow spots down the middle of the back); *L. Bohemanni*, Stål, somewhat resembling *pullula*, but larger, and *Metropis Mayri*, Fieb., a black species with a head shaped like that of *L. mesomelas*.

In conclusion, I consider it an extremely interesting point that the similarity of many of the species is so great that they can be broken up into what I call parallel pairs. Indeed, so similar are the creatures of each pair, both in the developed and undeveloped form (*i. e.*, with complete elytra and wings, or with incomplete elytra and no wings), that, except by the form of the genital segment and the styloid processes, it would be next to impossible to separate them. With the exception of the first-named, and of *L. basilinea*, Germ., all the species are British, and their diagnostic characters have been already given.

They are as follows :—

Delphax crassicornis, Fab., and *D. pulchella*, Curtis.
Liburnia fuscovittata, Stål, and *L. lineola*, Germ.
„ *smaragdula*, Stål, and *L. unicolor*, H. Schf.
„ *pellucida*, Fab., and *L. discolor*, Boh.
„ *speciosa*, Boh., and *L. basilinea*, Germ.
„ *Fieberi*, Scott, and *L. lepida*, Boh.
„ *leptosoma*, Flor, and *L. niveimarginata*, Scott.
„ *cognata*, Fieb., and *L. exigua*, Boh.
Stiroma affinis, Fieb., and *S. nasalis*, Boh.
„ *albomarginata*, Curtis, and *S. mœsta*, Flor.

The next paper will comprise the British species of *Cixiidæ*.

(To be continued.)

A PRELIMINARY ACCOUNT OF *CECIDOMYIA DORYCNII*, *SPEC. NOVA*, AND OF *CALLIMOME DORYCNICOLA*, *SPEC. NOVA*, ITS PARASITE.

BY ALBERT MÜLLER.

The materials at my command concerning this *Cecidomyia* are exceedingly fragmentary, and hence my notice partakes of the same character. If, nevertheless, I bring it forward, my wish to call attention to the little we know of southern gall-flies must be my excuse. Thanks to Mr. Stainton, the *Micro-Lepidoptera* of the "sunny south" have had their day of reckoning up; that of the *Micro-Diptera* has yet to come.

Food-plant: *Dorycnium suffruticosum.*

Locality: Mentone; April (Mr. H. T. Stainton).

Egg: laid in the axil of the stem, from whence the bundle of verticillate leaves ought to spring, and where a gall, consisting of the transformed leaves, appears instead.

Gall: monothalamous, as long as the full-grown normal leaf, oval, bud-shaped, with a pointed and sometimes curved apex, standing stiffly on a short peduncle; ground-colour ashy-grey, clothed with a silver-white pubescence, which is longer than that of the normal leaf; interior of the oval upright cell dark olive-green and smooth.

Larva and pupa unknown. These two stages are passed inside the gall, as proved by the armed basis of the feeler-cases of the pupal skin (noticed below), which aids the mature pupa to pierce the gall.

Pupal integument: length 3–4 millim.; slender (♂) or stout (♀); pale brown, except the limbs, which are almost transparent, head small, deeply imbedded; feeler-cases detached, gracefully curved back over the thorax, their tips reaching as far as the first abdominal segment, their united basis is protruded into a double spur, beneath which there appear two shorter spurs, standing in a line; thorax slightly arched, polished; *no* notch between it and the abdomen; wing-cases reaching to the middle of the third abdominal segment; outer and central pair of leg-cases equally long, stretching just over the fifth abdominal segment; middle pair a little shorter.

Imago: expans. alar. 9 millim. I have only seen fragments, including wings, by which it appears that *Cec. dorycnii* belongs to the sub-genus *Asphondylia* of Loew, which location its œconomy, so far as known, and the shape of the pupal skin already point out. It is closely allied in neuration, and in the shape of the pupal spur, to *A. sarothamni*, Loew, which passes its metamorphosis in bud-shaped galls on the twigs of *Sarothamnus scoparius* (Loew, Pr. d. Pos. Gymn., 1850, s. 38, 48).

CALLIMOME DORYCNICOLA, *spec. nov.*

Femina: viridis, nitens, antennis nigris, pedibus pallide fuscis, alis hyalinis, oviductu abdomine paullo longiore. Corp. long. sine oviductu, 3 *millim.; alar. exp.* 7 *millim.*

The larva of this parasite nestles in the body of its victim, gradually consuming it, until scarcely more than the skin is left, yet sometimes the Cecidomyian larva contrives to assume the sculptured pupal state all the same, but there its resistance is at an end; the *Callimome* passes its metamorphosis in the Cecidomyian pupal skin, and, when ready for flight, pierces the Cecidomyian skin between the wing-cases, and afterwards the gall itself, through which it drills a neat round hole.

South Norwood, S.E.: 11*th July*, 1870.

ON THE METAMORPHOSES OF *MANTISPA*.

BY FRIEDRICH BRAUER.

[*Extracted and translated from the Verhandlungen der zoologisch-botanischen Gesellschaft in Wien, Band* xix (1869).]

In 1851, I obtained a female of *Mantispa styriaca*, Poda (*pagana*, L.), which deposited eggs attached to a peduncle, as in *Chrysopa*, and in 21 days the larvæ appeared. These larvæ refused nourishment, yet in the following spring I found them yet living in the glass in which they were contained, but I could not understand what food to offer them.

In June, 1855, I found in the earth, near Mödling, a cocoon with double envelope which produced a *Mantispa*; and in the autumn of the same year obtained larvæ from eggs, which only served me as alcoholic specimens. I had thus obtained a knowledge of the egg, of the form of the young larva, and of the pupa, but the manner of life yet remained in the dark.

Seven years later, a lucky find brought amazement to my friend Rogenhofer. On the 21st May, he found on the Hundsheimer Berg, near Hainburg, a spider belonging to the rich genus *Lycosa*, which was guarding its egg-bag in a hole in the earth, more than an inch in depth. He took the egg-bag with him, in the hope of breeding therefrom parasitic *Hymenoptera*. One morning he saw, to his great astonishment, a pupa of *Mantispa* emerge from the bag. Here then was the mystery nearly solved. The egg-bag contained inside the second yellowish cocoon of the *Mantispa* between two spun-together remains of spiders' eggs.

After this I lost no opportunity of obtaining *Mantispa* larvæ from the egg, and placed them in the egg-sacs of various spiders; but they all died without eating.

Through these observations, I came almost to the conclusion that an analogy existed between Fabre's remarks on the habits of the larva of *Melöe* and that of *Mantispa*. The sequel proved that much similarity exists between these two genera.

The failure of the last experiments resulted from ignorance, not only of the right egg-bags, but also of the proper time to place the larvæ with these receptacles. The observations seemed, however, to prove that the larvæ hybernate at large, and, after a fast of eight months (from September until April of the following year), first enter the spider's bag. Without doubt there was an awkward interval, which I had not clearly understood, and which all earlier observations failed to elucidate. (It is known that the larvæ of *Sitaris* fast seven months before they infest the bees.)

A collection of larvæ which I bred from the egg in August, 1868, hybernated on a piece of bark, placed closely together, in a glass filled with earth about an inch in depth, and which was covered with paper. Next April they began to disperse. At this time, I obtained, with much trouble, 20 examples of *Lycosa inquilina*, Koch, with their large white globular egg-bags (I may remark here that the larvæ will not enter the small green bags of *Lycosa fluviatilis*). These I threw into the glass with the *Mantispa* larvæ, and had not long to wait before many of them entered the bags. Here they did not begin to feed immediately, but often rested a week, apparently waiting for some special condition of the eggs; one could see them unaltered through the walls of the bag.

On the 26th April the larvæ commenced moving, and on the 17th May I opened an egg-bag, and found therein the larva yet in its first skin, and also a number of young dead spiders. After the moult, which soon followed (the only one which I observed, save that before the change to pupæ), the larvæ altered their character entirely, and took the form of maggots with rudimentary legs, their movements being those of a footless bee-larva, the short, thick, leg-stumps serving them no longer as a means of locomotion. The head is now very small, transversely oval, with an eye-spot (containing six simple eyes) on each side. In this condition the larvæ lie curved up in a convolution of matted bodies of spiders, and egg-shells, which they slowly and clumsily wind. They reach a length of 7 to 10 millimétres, and on the 27th May I found a larva of this size. The pupation of the full-grown larva occupies a long time as in *Chrysopa* and *Myrmeleon*. The larva spins first a yellowish or greenish, round or oval, cocoon inside the *Lycosa* egg-bag, and seems to lie unchanged therein during almost a fortnight. The change follows in the middle of June, and in four weeks the imago appears.

If a mother spider is placed with the egg-bag, it does not attack the *Mantispa* larvæ, but leaves them uninjured in its nest, although it carefully protects it against larger enemies.

[The foregoing observations by my friend, Herr Brauer, which I have freely translated and abbreviated, are an example of the patience and perseverance with which he works out the life-history of an insect—one of a series of many similar studies by him of the development of various *Neuroptera* and *Diptera*. The paper concludes with a careful comparison of the so-called "hyper-metamorphosis" of *Melöe*, *Cecidomyia destructor*, &c., &c., with the history of *Mantispa*, a dissertation too long for reproduction here. Herr Brauer has solved a perplexing problem in European *Neuroptera;* and it is reasonable to suppose that all the numerous species of exotic *Mantispæ* have similar habits. Some of our more observant foreign collectors will probably test this supposition. A species of the allied genus *Trichoscelia*, which inhabits South America, is known to infest the large papyratious nest of a honey-making wasp *(Myrapetra)* ; and some years since I was in the insect-room in the British Museum when a section was made of a newly-acquired nest of this nature. In this nest were numerous living imagos and pupæ (free and in cocoon) of *T. varia*, Walker (*Myrapetrella*, Westwood), but memory does not serve me as to the existence of larvæ. There can, however, be but little doubt that these also undergo a similar metamorphosis—first being long-legged and attenuated, living free, afterwards becoming thick, almost footless grubs, parasitic upon the wasps. In what can consist the protective powers possessed by these *Mantispidæ?*—powers which seem to act as an enchantment on such eminently predaceous animals as spiders and wasps, inasmuch as these freely harbour guests that prey openly upon their progeny.—R. McL.]

Captures of Coleoptera.—A day or two at Llangollen, in the early part of June, produced a few pretty good things. From hazel I beat a pair of *Telephorus unicolor*, and *Cryptocephalus fulcratus* (*flavilabris*, Wat. Cat.); also, under similar circumstances, *Gonioctena pallida*, sparingly; whilst a hedge composed of maple, hazel, thorn, and elm yielded *Pyrrhochroa coccinea*, *Opilus mollis*, *Clythra* 4-*maculata*, *Telephorus alpinus*, *Clytus mysticus*, *Hedobia imperialis*, *&c.*

On the flowers of umbelliferous plants *Pachyta* 8-*maculata* appeared rather freely, together with a few specimens of *Œdemera cærulea*. Sweeping met with but indifferent results, the only noteworthy capture being a pair of *Sitones cambricus*.

Running on a pathway, a single example of *Lebia chlorocephala* sported its brilliant colours, and in a rotten willow stump *Sinodendrum* was in great numbers.

On a mountain road, under very dry horse-droppings, I met with a single ♂ specimen of *Aleochara ruficornis*; and, under bark from an old rail, three specimens of *Hypophlœus depressus*.

In the latter part of June, I took a hurried trip to Sherwood with my friend John Ray Hardy, our most interesting captures being as follows:—by beating oaks, *Conopalpus Vigorsii* and var. *testaceus*, *Cryptocephalus querceti* and *Tiresias serra*. We also met with *Xylophilus pygmæus* very sparingly under the same circumstances, together with which insect I was fortunate enough to take one specimen of *Scraptia fuscula* and another of *Prionocyphon serricornis* (the latter has I believe been associated with ants' nests; its capture on oak may thus prove additionally interesting).

We saw but one *Cistela ceramboides*, which fell to my companion's lot, far away from the part of the forest where we captured it last year.

Under very rotten moist bark of a fallen oak we met with *Eryx atra* in all its stages, and have since reared a few of the pupæ.

Under birch bark, in fungoid growth, the following occurred to us; 2 specimens of *Plegoderus dissectus*, and *Aspidophorus orbiculatus*, and solitary examples (alas!) of *Lathridius testaceus* and *consimilis* (?) and of the rare *Sphindus dubius*.

The *Sternoxi* were conspicuous by their absence, the only capture beyond the most common species being a single example of *Elater cinnabarinus* (*lythropterus*, Wat. Cat.), which Hardy dug out of rotten birch.

Birch bark also yielded *Hypophlœus castaneus* in some numbers. I may here remark, for the edification of those who possess *Eros affinis*, that its habitat, so far as Sherwood is concerned, is, I am much afraid, destroyed; the greater part of the decaying wood, where it occurred to us in 1868, having been cleared away by the foresters.

In the first week of July we spent three or four days in the Burnt Woods near Market Drayton, Staffordshire, where we captured *Cryptocephalus punctiger*, *fulcratus* and *lineola* by beating birches, *C.* 10-*punctatus* and *var. bothnicus* on dwarf sallow, *Saperda populnea* on poplar, and *Lina ænea* on alder.—J. KIDSON TAYLOR, 3, Shakespeare Terrace, Old Trafford, Manchester, *August*, 1870.

Occurrence of Pissodes notatus near Manchester.—A few weeks ago, I took on Chat-Moss one or two examples of *Pissodes notatus;* and, on a subsequent occasion, with my friend Mr. Morley, captured several specimens of that insect by beating pine-trees. This species has not, I think, been as yet recorded from the Manchester district —WILLIAM BROADHURST, 23, Spring Vale Road, Pendleton, Manchester, 18*th July*, 1870.

Coleoptera at Rannoch in 1870.—I have captured the following *Coleoptera*, besides the general run of Rannoch species, during my stay there, from the 6th to 24th of June: one specimen of *Mycetophagus fulvicollis*, running on a fir log in the saw-mill yard at Dall, at which place I also took *Athōus undulatus* and *Elater pomorum* (single specimens of each, and each being dragged along by large wood-ants), *Scolytus Ratzeburgii*, *Rhinomacer attelaboides*, *Xyloterus lineatus*, *Hyperaspis reppensis*, *Tachinus elongatulus*, *Pytho depressus*, *Otiorhynchus maurus* (I always found this species on a heap of saw-dust, together with immature *Trichius fasciatus*), *Ips quadripustulata* and *Staphylinus latebricola* (which occurred again at moss at the foot of Cross Craig). *Dictyopterus Aurora* and *Trichius fasciatus* were abundant, but *Asemum* was rare and generally imperfect.

At the mouth of the river at Dall, *Cryptohypnus maritimus* was to be seen pretty frequently, and sometimes caught, and *Coccinella quinquepunctata* was rare. In stumps, between Camachgouran and Cross Craig, the three Rannoch *Leiodes* were fairly abundant, *L. castanea* being the most so. I found one *Anaspis rufilabris* (?) in a stump here, and afterwards several, together with *Cetonia floricola*, on ash blossom. I took two *Anobium nigrinum* and one *Dircæa lævigata*, by sweeping under fir-trees; on a decayed birch tree, at the foot of Cross Craig, one *Carida flexuosa*; in moss, *Tarus vaporariorum* and *Bradycellus collaris*, and in sheep-dung, *Autalia puncticollis*.

At Grayvel, *Anthophagus alpinus* was abundant, being found both by sweeping and in moss.

On the road through the Black Wood, *Carabus glabratus* sometimes appeared, and on one occasion *Lamia textor*. *Silpha nigrita* was not uncommon, and always brown.—EDWARD A. WATERHOUSE, Fountains Hall, Ripon, *August* 12*th*, 1870.

Coleoptera on the shores of Loch Leven.—At Loch Leven I was fortunate enough to capture *Silpha dispar* in dead perch and wings of rooks. Where the shore was sandy, *Bembidium pallidipenne* was not uncommon, together with *Georyssus pygmæus* and *Grypidius equiseti*; this last common and in good condition. *Blethisa multipunctata* was also abundant, amongst wet grass.—ID.

Note on œconomy of Mecinus and Baridius.—I have bred *Mecinus collaris* from galls of *Plantago maritima*, which are very abundant here, though the beetle is rare, as 99 out of every 100 galls contain Hymenopterous parasites; and I have also bred *M. pyraster* from galls of *Plantago lanceolata*. *Baridius laticollis* is to be taken somewhat plentifully here, in roots of *Sisymbrium officinale*, from which I have reared it.—H. MONCREAFF, 9, Wish Street, Southsea, *August*, 1870.

Note on Platysamia Cecropia, Linn.—In "The American Entomologist" for February, 1870, is an article on this insect, where it is mentioned in a note that the late Mr. Walsh had at one time denied that silkworms and other moths employ a fluid to moisten their cocoons, and loosen their texture to facilitate emergence. Though the matter is now to be regarded as open to no doubt whatever, some details of the process may be interesting. I confess that I was once inclined to doubt the fact, assuming that the moths that were said to do so had no mouth apparatus for the purpose; for it is precisely those moths that have no proboscis and hardly any oral appendages that soften their cocoons with a special fluid.

I have examined several specimens of *P. Cecropia* at the moment of emergence, having first taken the pupa out of its cocoon; as soon as the chrysalis case bursts, the head of the perfect insect appears—this is clothed in front with red hairs, bounded behind by the grey wool of the collar (prothorax). These red hairs are seen to be moist, and as soon as the vertex is all visible it becomes quite wet. If this fluid be removed, it is replenished to a total amount of more than one minim. What is most striking in examining the insect in this way is that, though the wool on the head is as wet as a sponge, the wool of the collar and prolegs which touches it remains perfectly dry. The fluid itself is colourless, faintly alkaline, and, when applied to the silk of the cocoon, renders it almost instantly soft, and easily teased out. The fluid appears not only to soften the gum that stiffens and binds together the silk, but to a certain extent to destroy or neutralise it, as the margin of the opening from which the moth has emerged remains soft and pliable, without any of its previous stiffness or harshness. The wetted surface of the head dries very rapidly after emergence. The fluid comes from an opening which must be the mouth. This is a narrow transverse slit, separated from the wool of the face by a narrow naked surface which I take to be the labrum, and prevented from reaching to the eyes on either side by two small projections which appear to represent the mandibles. Immediately below it are two rounded elevations which must be the maxillæ. This region is all free from wool, but is covered by the palpi which are attached immediately below, and which are clothed with hair, as is also a narrow plate just below them (the labium?); after which is the membrane articulating the head to the following segment. Each palpus appears to consist of only one joint articulated by a rather narrow neck, but it is difficult to assert whether it be the labial or maxillary palpus, though I incline to think it the former. In either case, I think it evident that the orifice from which the fluid proceeds is the mouth.

In a note on *Tipula flavolineata* in the Ent. M. Mag., I described how the intestinal canal is inflated with air on the emergence of the insect from the pupa state. This appears to be a very common occurrence during the ecdysis of insects, though I do not remember to have seen it noted. I have observed it in several *Lepidoptera*, and in the earwig at its several moults. The larva of *P. Cecropia*, when about to spin, discharges, with the last contents of the intestinal canal, from thirty to fifty minims of clear fluid, which soon becomes brown (especially if the larva have fed on apple); and various other *Bombyces* do the same: the larva, notwithstanding, does not diminish in bulk, but the intestinal tube is inflated with air; this is easily tested by scratching the tubercles of the larva, when a hollow sound results, hardly any sound being produced by so treating a feeding larva; and I have determined by dissection that the air is in the intestine.—T. ALGERNON CHAPMAN, Abergavenny, *June*, 1870.

Description of the larva of Acronycta myricæ.—To the kindness of Mr. George H. Kenrick, of Innerhadden, I am indebted for the opportunity of offering a description of the full grown larva of this species, which I have proved by breeding the moth, as far as I know, for the first time.

The larva, taken in Perth-shire, reached me 12th September, 1869; ate, apparently without preference, sweet-gale, sallow, heath, or ling; spun itself up in a tough silken cocoon covered with moss, on the 15th; and the moth—a female—appeared on June 28th, 1870.

I may mention that a Moray-shire example of this larva, sent me for inspection about the same time as the above by Mr. Longstaff, showed a decided partiality for birch.

The Perth-shire larva I figured on September 12th, and at the same time noted the following particulars.

The larva is one inch and a half in length, moderately stout, the last three segments seen to taper a little to the anal extremity when looked at from above: the head rather flattened in front, widest at the sides just above the mouth, and scarcely less than the second segment, but the two lobes are rounded and well defined on the crown; the second segment is almost flat on the back, though all the other segments are remarkably rounded and plump, and the segmental divisions deeply cut.

The ground colour is a rather smoky deep olive-green; the head is black and shining, the lobes outlined with pale olive, the base of the papillæ lemon-yellow, the mouth olive-green; the second segment has a black shining plate on the back, divided in the centre by a thin line of yellowish olive; the third segment has an orange-red transverse central band extending to the sub-dorsal region, and dividing a broad, oval, dorsal, black, velvety mark, with an olive tubercle in front at each end; the fourth segment has a similar broad dorsal oval of black, bounded on either side by a large sub-dorsal lemon-yellow tubercle; on each segment, excepting the first two, there is a transverse black velvety broad band, somewhat saddle-shaped, and upon this, in the sub-dorsal region, from the fifth to the thirteenth segment inclusive, is a conspicuous lemon-yellow blotch, something of a triangular form, but with rounded angles; the lower side marking well the sub-dorsal region, and bearing on its hinder angle, sloping upwards, two large wart-like tubercles of the same colour, and almost close together; the spiracles are white, and are situated in the bottom part of the velvety black transverse bands, and a little above each, on the black band, is an olive tubercle; immediately beneath the spiracles is an inflated and rather punctured stripe of bright orange-red running along the side; below this come other olive tubercles, two on the lower side of each segment; the ventral surface is also of the olive ground colour; the pro-legs are of a darker, smoky-olive, the anterior legs black. All the tubercles are furnished with fascicles of hairs of a smoky-olive tint; those on the third segment are longer, more numerous than the others, and directed forwards to the crown of the head; some longer hairs also proceed irregularly from the twelfth segment, and point backwards.

The Moray-shire larva was much like the foregoing, save that it had black hairs mixed with the olive ones; its sub-dorsal blotches were less bright, though of a deeper tint of yellow; and there was more orange than red in the transverse band of the third segment, as well as in the sub-spiracular stripe, which last also was interrupted at the segmental divisions.—Wm. Buckler, Emsworth, *August*, 1870.

Description of the transformations of Hepialus velleda.—It is with a feeling of great thankfulness to Mr. Joseph Steele, of Congleton, that I am able, through his untiring exertions, to bring to light the history of this species.

The eggs were scattered by the parent moth on the ground amongst the stems of fern (*Pteris aquilina*) during the month of June.

The egg is globular, and of a pale drab colour, which in a few hours changes to a deep blue-black. The young larva is hatched in three weeks; it is then of a drab colour, with pale, reddish-brown, horny head, plates and spots, and distinctly visible hairs.

It immediately begins burrowing into the earth by the sides of the fern stems, nibbling them in its progress downwards to the root or rhizome of the fern, from which its future sustenance is to be derived during two seasons.

By the end of the first twelve months of its existence, the larva has attained the average length of three-quarters of an inch, and is very slender and active, of an opaque yellowish- or greyish-white, with three transverse blackish translucent streaks on the back of each segment, and the blackish dorsal vessel visible through the skin.

It continues to feed till quite late in the autumn of its second year, when it becomes full-fed; having, meanwhile, committed very extensive ravages on the fern.

The rhizome, tough as it is, though juicy at the same time, is excavated and channelled out for about the length of ten inches, in some places nothing being left but the outer rind—in others, the galleries of the larva being scooped out tortuously along the outside.

During its second winter, the larva remains torpid at some depth; but, on the advent of spring, approaches near the surface of the earth.

It is now full grown, and, according to the sex, measures from 1¼ to 1⅓ inches in length—rather thick in proportion, the folds and segmental divisions being very deeply cut, and the jaws remarkably large and prominent.

In colour the head of the ♂ is reddish-brown, with a distinctly defined plate of the same colour on the second segment, while in the ♀ the head is of a deeper and purplish-red; the mouth (in both sexes) blackish, and the plate on the second segment of a pale brownish-orange, at each side blending gradually into the ground colour of the body, which is of a whitish cream tint; the third and fourth segments have pale brownish-orange plates on the back; viz., a large drop-shaped one in the middle extending from the back down either side, with a shuttle-shaped one before and another behind: a similarly coloured plate is on the anal tip.

The dorsal vessel is seen through the thoracic segments as a pulsating tortuous blackish streak; the tubercular spots on the back are orange, each on an eminence of the ground colour; those on the sides are small and dusky, and each is furnished with a highly sensitive brown hair. The spiracles are black, and rather large in size.

From near the end of April to the beginning or middle of May, according to the season, the larva proceeds to spin a slight cocoon of silk, covered with light earthy particles, amongst the loose vegetable soil, in which it remains a pupa for about a month.

The pupa of the ♂ is about three-quarters, and the ♀ seven-eighths of an inch long, of a uniform, reddish-brown colour, thick in proportion throughout; the tip of the abdomen is blunt and rounded, the head slightly beaked, the segments deeply cut;

a very prominent sharp ridge all round the twelfth segment is furnished with short hooks curved backwards, and two rather prominent ridges with similar hooks are on the back of the other abdominal segments; these hooks are gradually larger as they approach the hinder extremity, the tip of which is encircled with a few blunt spikes. Beneath the abdomen, occupying the precise situation of the former pro-legs of the larva, are pairs of short ridges finely hooked, playing still the part of legs in the movements of the pupa,—which, when feeling its final transformation approaching, bursts through its fragile cocoon, and travels upwards till its wing-cases are thrust out clear from surrounding objects, and the imago can emerge without incumbrance.

This last event takes place in the early part of June.—Id.

Occurrence of Pempelia obductella, F.R., a species new to Britain.—Several specimens of this species have been captured by Mr. Button, of Gravesend, this season, which are now in my possession. The species was kindly identified for me by my friend, Mr. Doubleday, who says "the larva feeds upon various species of mint, especially *Mentha arvensis;* it is dull green, with longitudinal black stripes." —E. G. Meek, 4, Old Ford Road, E., *August* 10*th*, 1870.

Capture of Argynnis Lathonia and Chœrocampa Celerio near Faversham, in 1869. —While staying last month with my friend the Vicar of Selling, near Faversham, his youngest son, a boy of twelve, brought me a box to look over, containing a few insects collected by him during the summer of last year and the spring of this; at the same time telling me that he believed there was a 'Queen of Spain' among them. Knowing how often *Adippe* or *Aglaia* is mistaken for the rarer species, I felt very sceptical; but, on opening the box, the first thing my eye fell upon was a veritable *Lathonia*, set to show the unmistakeable under-side. It was taken last summer by the road-side, between Selling and Chilham, and is in very fair condition. I speedily discovered a second rarity in the shape of a specimen of *C. Celerio*—badly damaged, unfortunately. This I found had been taken in the house at Woodlands, Selling, the previous autumn. What luck the boys have! there was hardly a specimen of the commoner fritillaries or hawk-moths in the box! Both of these prizes were generously presented to me by their captor, Master Herbert Beardsworth.— Hugh A. Stowell, Breadsall Rectory, Derby, *August* 2*nd*, 1870.

Deilephila galii near Derby.—I captured a ♂ specimen of *D. galii* at honeysuckle in my garden, about 8.40 p.m., August 1st; and almost at the same moment my little friend Bertie Barton took a ♀ at verbena flowers on the other side of the house. We took two more at the verbenas, in the evening of August 6th.—Id.

Deilephila galii at Alphington.—On the 5th instant, about eight o'clock in the evening, I captured a very fine *Deilephila galii*, ♀, hovering over a white *Petunia* bed. Insects are now coming very plentifully to sugar. I had last night no less than 30 species of *Noctuæ*, 16 species of *Geometræ*, and many *Micros*, on the trees, &c., in my orchard and garden.—H. D'Orville, Alphington, near Exeter, 11*th August*, 1870.

Deilephila galii at Leominster.—On the 7th of this month, I had the good fortune to take a splendid *D. galii* flying over a bed of *Petunia*. I have since seen another that was caught by Mr. Nield, of Clifton, a gentleman now staying in Leominster.—T. Hutchinson, Grantsfield, 15*th August*, 1870.

Deilephila galii in Herefordshire.—I had the pleasure of capturing at St. Weonards, near Ross, Herefordshire, on the evening of Wednesday, August 3rd, about 8.30 p.m., a fine ♀ example of *D. galii*. Perhaps this may be worth recording, as I am not aware that the insect has previously occurred in this county. I first observed it hovering over scarlet geranium.—F. Bond, Adelaide Road, N.W., *August* 8*th*, 1870.

Deilephila galii at Stalybridge.—A specimen of *D. galii* was taken in a garden near the Stalybridge Naturalists' Club Institute on the 3rd, and another in the same locality on the 5th, of the present month.—D. Jolliffe, Stalybridge, 18*th August*, 1870.

Deilephila galii in Suffolk.—A specimen of this insect was taken at Great Glenham on the 4th inst. by my young friend Mr. Capel Holden; I learn also from Mr. Harwood that the Rev. Hugh Stowell has taken four specimens in his garden at Breadsall, near Derby: so that there seems a prospect of this insect being more plentiful this year than it has been of late.—E. N. Bloomfield, Guestling Rectory, *August* 20*th*, 1870.

Scoparia Zelleri and Sesia ichneumoniformis at Wolverton.—During the past three weeks I have captured upwards of 30 specimens of *Scoparia Zelleri* by beating old willow and hawthorn trees, but never getting more than three or four at each visit. On the 8th instant, I captured a fine pair of *Sesia ichneumoniformis* by sweeping the flowers of rushes.—W. Thompson, 183, Stantonbury, Wolverton, Bucks, 19*th July*, 1870.

Occurrence of Scoparia basistrigalis near York—On the 6th July, I took four specimens of a *Scoparia*, which at the time I passed over as very fine *truncicolella*. Upon taken them off the setting boards, I saw at once they were something different to any species I had ever seen before. I at once sent a pair up to Dr. Knaggs, who very kindly named them for me. I have since taken three others, unfortunately in worn condition.—W. Prest, 2, St. Saviourgate, York.

Capture of Lemiodes pulveralis.—Your readers will be pleased to hear that this novelty has again turned up. I have in my possession seven specimens which were recently captured by Mr. Joseph Meek, at Folkestone.—T. Cooke, 513, New Oxford Street.

Anticlea sinuata in South Devon.—On July 15th, I captured two female specimens of *A. sinuata* at Buckfastleigh; and on the following evening, accompanied by my friends Messrs. G. F. Mathew and J. W. Peers, I again tried the same locality, when one example was taken by Mr. Peers. Last night I caught a specimen at Slapton Sands, near Dartmouth. It is more common here than I imagined. —S. H. Coles, H.M.S. Britannia, Dartmouth, *July* 21*st*, 1870.

Agrophila sulphuralis at Wandsworth.—On the 26th July, we took a specimen of *A. sulphuralis* at light, here; this is, we believe, a new locality for this local insect. On the 8th July, we took *Chesias obliquaria* here, also at light; it has likewise occurred on Barnes Common: neither of these localities having, we think, been previously recorded.—E. & H. Greville, Southfields, Wandsworth, *August 1st*, 1870.

[Some years since, Mr. Barrett took an example of *A. sulphuralis* at a gas-lamp, we believe at Dulwich, or in that neighbourhood.—Eds.]

Captures of Lepidoptera in 1870.—While travelling with my friend, Mr. Warrington, of the Isle of Man, this season, we succeeded in capturing the following species:—*Satyrus Semele*, bred from larvæ found on thrift, Isle of Man; *Gluphisia crenata*, 3 specimens amongst aspen, Isle of Man; *Dianthœcia capsophila*, Isle of Man and Howth; *D. conspersa*, Isle of Man and Howth; *D. compta*, Howth; *D. cæsia*, Isle of Man; *D. Barrettii*, Howth (one laid a few eggs which hatched about July 6th, I gave the young larvæ flowers and seeds of *Silene maritima*, but they refused them and died); *Polia nigrocincta*, larvæ on thrift, Isle of Man; *Scoparia Zelleri*, several, North Devon; *Penthina carbonaria*, in a rough field, North Devon; *Opadia funebrana*, beaten out of an old hedge, North Devon; *Dicrorampha flavidorsana*, amongst wormwood, North Devon; *Catoptria modestana*, in a wood, North Devon; *Eupœcilia curvistrigana*, one specimen, North Devon; *Œcophora Lambdella*, North Devon.—E. G. Meek, 4, Old Ford Road, E., *August 6th*, 1870.

Leucania albipuncta at Folkestone.—Last night I captured a fine specimen of this species at sugar.—Howard Vaughan, Folkestone, 18*th August*, 1870.

Note on the Lepidoptera of Humphrey Head and other localities in Lancashire.—On the 8th July, I spent a few hours at this rough and rugged promontory, about three miles below Grange, which locality, if well worked, would no doubt produce many of the Isle of Man species. My main object was to obtain a supply of *Coleophora salinella*, but I got one only, although I had obtained 70 in the same locality two years ago. But the day was intensely hot, and the flies tormented me so greatly that I could scarcely look for a moth. In the marsh I met with *Gelechia instabilella*, *Crambus contaminellus*, *Elachista Bedellella*, and *C. salinella*. Among the *Sedum* on the rocks, I took *Glyphipteryx equitella*, and, flying round the sloe bushes, several of *Semasia janthinana*, a species I never before met with. I feel certain this place must be a good locality. Along the marsh-side there is an abundance of mullein, yellow-poppy, and *Atropa belladonna*, as large and strong as nut bushes. I should have liked to spend the evening there, but had made arrangements for a conveyance to take me back to Witherslack. The conveyance came, as did also a terrific thunderstorm, which soon filled my pockets with water, and also reduced all my pill boxes to pulp. However, I had, in a tin canister, larvæ of *Eupithecia venosata* and *Dianthœcia carpophaga*, and also *Depressaria* larvæ feeding on thistle, which no doubt are those of *subpropinquella*. The next morning was fair, and I went into a field opposite the "Derby Arms," and among the hollies beat out several specimens of *Eupithecia constrictata* and *pumilata*, *Crambus fulvellus* and *pinetellus*, *Lithosia complanula*, *Elachista sub-obscurella* and *Gleichenella*, and a *Sciaphila*, which is said to be *perterana*, but which is different to those I used to receive under this name. After breakfast I bent my way towards Whitbarrow, and in the lanes took *Eucosmia undulata*, *Eup. constrictata* and *tenuiata*, *Geometra papilionaria*, *Ligdia adustata*, *Acidalia inornata*, *Ephippiphora signata*, and *Olindia ulmana;* also, among the juniper, *Argyresthia dilectella* in plenty; and, by creeping on my hands and knees, two specimens of *Elachista triseriatella*. On the shingles, under Whitbarrow, I got *Rhodophæa marmorea*, but *Miana expolita* was out of the question, the wind carrying them away at a furious pace.—J. B. Hodgkinson, Preston, *July*, 1870.

Noctua baja paired with Leucania pallens.—Until last week, I do not think, at any sugar operations, I ever saw *Noctuæ in cop.*; but, on the evening of the 15th, I was rather startled in witnessing an unnatural alliance between *N. baja* and *L. pallens*—I fancy the male was *pallens*. Sugaring has been very productive here; on the occasion above mentioned, near the river Findhorn, I counted 766 moths on about 200 trees. Several moths new to the locality have turned up this season; *Heliothis marginata*, *Caradrina alsines*, *Hadena rectilinea* and *contigua*, for instance, all at sugar. The black and red variety of *Triphæna orbona* is just appearing.—GEO. NORMAN, Forres, 18*th July*, 1870.

Note on the food-plants of Acronycta menyanthidis.—As regards the food-plants of this insect, my experience goes to corroborate the statement in the "Entomologist," as I never found the larva on *Myrica gale*, while I have found from 30 to 40 on *Menyanthes trifoliata* and on *Calluna vulgaris*. In confinement I have found them eat hawthorn readily; in fact, I have found that almost any species, which in a wild state feeds on heather or willow, will, in confinement, feed on hawthorn, and that almost all heather feeders will also eat willow. On hawthorn, I have reared successfully *S. carpini*, *B. callunæ*, *A. menyanthidis*, &c.; and on willow, the above species, and *L. cæsiata*, *Anarta myrtilli*, *Cidaria populata*, &c.—J. TRAILL, Old Aberdeen, *August*, 1870.

Note on the larva of Miana arcuosa.—During the latter part of May, I had the good fortune to find the long-wanted larva of this species, feeding at the crown of the root of *Aira cæspitosa*; the pupa is to be found in the same position. The perfect insects appeared at intervals between June 26th and July 16th.—JAMES BATTY, 81, Wentworth Street, Sheffield, *August 1st*, 1870.

Note on Mimæseoptilus aridus.—Some few months ago, Dr. Jordan kindly sent me a plume moth which had been taken by Mr. Dorville in Devonshire. On learning it was Zeller's *aridus*, I compared it with a specimen I took on a rock face (one of the ugliest I ever had to climb) at the Isle of Man, in June, 1867, and which I had believed to be a new species, and I found them identical. On noticing the remark in Ent. Annual, 1870, p. 143, it struck me that anything tending to elucidate the point to which Professor Zeller has called our attention might be of interest. I may therefore mention that, so far as I could ascertain from the rugged nature of the ground where I captured my specimen, there was no *Knautia arvensis* growing anywhere near; and, as Professor Zeller says of his *serotinus* that it feeds on that plant, at first down the centre and afterwards on the leaves, it may be quite possible that *aridus* is a good species.—C. S. GREGSON, Rose Bank, Fletcher Grove, Liverpool.

Note on leaf-folding gall-midges.—As in the *Lepidoptera* we meet with gall-making, leaf-rolling, and leaf-folding *Tineina*, so we find amongst the *Diptera* a large genus, *Cecidomyia*, the members of which are adepts in the same crafts. In the present lines I will confine my attention to a few gall-midges which, in their larval state, fold leaves, and the œconomy of which wants further investigation.

Throughout the summer, I have for several years past noticed in this neighbourhood, yellowish larvæ of a *Cecidomyia* in the doubled-up and incrassated leaflets of *Rosa canina*. Each leaflet is neatly folded edge to edge, so that the upper-side of the leaflet forms the inner wall of the cavity, whilst under the irritation of the suction of the larvæ from within and under the solar influence, the outer (*i. e.*, the under-side of the leaf) becomes red and bloated, forming a series of bosses between the lateral ribs. I have seen from 3 to 10 larvæ in one of these pod-shaped folds.

Bremi has figured and described an almost identical formation on the same rose found in Switzerland (Beitraege z. e. Monographie der Gallmuecken, 1847, p. 27, et tab. ii, fig. 31); but, as he mentions that the larvæ he found in it were pale green, I apprehend that my British larvæ will turn out to belong to a species other than his *Cecidomyia rosæ*, and which I do not believe has ever been described.

In June of the present year, near Godalming in Surrey, and also in this neighbourhood, I met with oak leaves, some lobes of which were neatly folded and laid down on the under-side, forming a snug hollow covering for two or three greenish-white small larvæ of a *Cecidomyia*. The folds were of a paler colour than the leaf itself, and therefore easily detected. An adult larva was a line in length, white, with green intestine, its first segment slender and beak-like, the breast bone well marked and pale yellow. In one fold, found here (12th June), I met with two of the minute, elongate, white, and semi-transparent eggs of this species, fixed to the surface by one end, and standing upright.

Similar folds, also caused by Cecidomyian larvæ, occur on *Onobrychis sativa*, and on various species of *Trifolium*; and, if the present notice should induce any observer to turn his energies in the direction of the hitherto neglected study of leaf-folding *Diptera*, I shall not have written it in vain.—Albert Müller, South Norwood, S.E., *9th August*, 1870.

Cecidomyia terminalis, Loew, pruning the top-shoots of Salix fragilis.—Last summer I recorded the action of *C. salicina* on the top-shoots of *Salix alba* (Ent. Mon. Mag., Vol. vi, p. 109). During last July I have had occasion to watch the operation of an allied species, *C. terminalis*, Loew, the eggs of which, to the number of 20 or 30, arelaid in the tops of the most prosperous shoots of *C. fragilis*. Each shoot so provided remains stationary in growth, the top assuming a close and galled appearance, and sheltering within its bloated leaflets the numerous reddish-yellow larvæ, which have emerged from the said eggs. The larval state lasts about a fortnight: an equal period suffices for the pupal stage, which is passed under ground, and the perfect insects force their way out of the pupal integument in the usual way. Very soon after the larvæ have left the shoots, the tops rapidly wither away and turn brown; at the junction between the healthy part and the galled top, a series of minute woody cells covers the surface of the shoot, and gives it the appearance of a closed scar; in fact, it is the same process which causes the autumnal shedding of the healthy leaf and the fall of ripe fruit. The scars look as if cut with a sharp pruning knife; and I recognize, in the operation of this minute gall-midge, one of the potent agencies which check the undue growth of a tree, the easy and rapid propagation of which has almost become proverbial.—Id.

Obituary.

Professor Lacordaire.—Jean Théodore Lacordaire was born at Recey-sur-Ource (Côte d'Or), France, on the 1st February, 1801, and was educated in the Lyceum at Dijon, in which town he also appears to have studied for the legal profession But his inclinations for Natural History caused him to travel in South America, that continent in which nature is most prodigal, and between 1825 and 1832 he made four voyages, visiting and exploring Brazil, Buenos Ayres, Chili, French Guyana, &c., amassing vast stores of the natural productions of these countries, and publishing, on his return, an account of his expeditions. In 1835 he accepted the professorship of Zoology at the University of Liége, and afterwards also that of Comparative Anatomy; eventually he became rector. He died at Liége, on the 18th July last, in his 70th year, his end having been probably hastened by the death, early that month, of a favourite daughter. As an entomologist, and especially as a Coleopterist, Lacordaire had for many years occupied a very high pinnacle of fame. To specify and examine his publications would occupy more space than we can afford—we mention one work only, a work which will hand down his name to generations of entomologists yet unborn, as a masterpiece of research. We allude to his "Genera des Coléoptères," forming part of the "Nouvelles suites à Buffon." Commenced in 1854, he had already, at the time of his death, published eight complete volumes and the first part of the ninth vol. of this gigantic undertaking, the concluding part of that volume being in the press. But he was not to finish his labours—one more volume (that comprising the *Phytophaga*, his favourite group, which he monographed twenty-five years ago), and the edifice so admirably begun and continued by him would have been completed. Let us hope the materials for that volume may have been left in such a state that some editor worthy of his task may be able to put the finishing stroke to what must remain a monument of research. Lacordaire was essentially a student, and not a collector, of insects. Though, of necessity, his stores must have been rich, he used them for their legitimate purpose of furthering his investigations; and, when each part of his work was completed, his materials for that part were usually dispersed, so as to leave him untrammelled for the work to come: in some respects he relied more on the collections of others than upon his own, for he spared no means by which to obtain a personal examination of the generic types described by various workers, so as to satisfy himself of their value, and so as to be able to correct or amend their descriptions, a task we fear too often necessary. His was the master mind which was to put in order the chaos of scattered observations. He was Honorary Member of most of the European Entomological Societies.

Thomas Henry Allis.—On the 1st August, at York, at the age of 53 years, passed from amongst us T. H. Allis, whose name will be long remembered by British Entomologists, and whose noble-heartedness will long cause him to be lamented by a large circle of fellow-workers. Mr. Allis was educated at the Friends' School at York, and among his school-fellows were Benjamin and Nicholas Cooke, Edwin Birchall, and others not unknown as devoted students of entomology. The taste for Natural History exhibited in this circle of boys was no doubt fostered and encouraged by Mr. Allis's now venerable father, Thomas Allis, well-known as a palæontologist. In after life his avocations necessitated a constant removal from place to place, and in this way he was enabled to explore many favoured entomological localities, and to amass by his own exertions, and by continued communication with entomologists, a collection of British *Lepidoptera*, which for extent and beauty is almost unrivalled. With great satisfaction we learn that this collection is not likely to be dispersed; it is of additional importance, inasmuch as it contains a number of types from the cabinet of the celebrated A. H. Haworth. But, besides his collection of *Lepidoptera*, Mr. Allis also possessed a magnificent set of British *Falconidæ*, the greater part of which were prepared by his friend Graham of York, a justly celebrated taxidermist. His name will go down to posterity in connection with *Excæretia Allisiella*, discovered by him some twenty years since, and which, until recently, was of great rarity. Mr. Allis had been in failing health for several years, and when the writer of this notice met him at York, in August, 1866, he was pained to see the wreck illness had then made of a constitution naturally most robust. At times he visibly improved, but rapidly declined a few months since, and at last his sufferings were such that death was probably a happy release. He was long a member of the Entomological Societies of London and Stettin.

Alexander Henry Haliday.—In our last number we briefly announced the death of this celebrated entomologist, promising a more extended notice of his life. Mr. Haliday was born at Belfast, in 1807, and, after his preliminary education was completed, entered at the age of 15 years as a student at Trinity College, Dublin, where he remained 5 years, earning for himself much distinction, and obtaining his degree of M.A. Subsequently he studied for the legal profession, and was called to the bar, but we are uncertain whether he ever practised. Settling in the North of Ireland, he devoted himself enthusiastically to the pursuit of literature and Natural History, and the high respect in which his character was held, caused him to be elected High Sheriff of Antrim, in 1843. His earliest entomological publication was probably a local list of *Coleoptera* and *Diptera*, communicated to the "Zoological Journal" in 1828; but soon afterwards he appears to have devoted himself more especially to the latter order, then almost unstudied in this country, and to which he continued constantly to pay much attention, publishing many papers thereon which have received the highest encomiums from such well-known Dipterologists as Loew and Schiner. A considerable portion of the "*Insecta Britannica—Diptera*" (the whole of the family *Dolichopidæ* and most of the *Empidæ* and *Syrphidæ*) was furnished by him, and it is with mingled feelings of pleasure and regret that we find Loew, in a notice of this work, stating that "the excellent plates by Mr. Westwood, and the systematic arrangement, prepared for the most part by Mr. Haliday, give to this work a character not shared by others of Mr. Walker's publications." But not to his Dipterous labours alone did he owe his fame as an entomologist. His classification of the minute parasitic *Hymenoptera* belonging to the *Chalcididæ*, *Proctrotrupidæ*, &c., &c., and his arrangement of the order *Thysanoptera*, show how thoroughly and exhaustively he investigated those most difficult groups of Insects. About 10 years since, Mr. Haliday's health became uncertain—severe dyspeptic attacks reacted upon his nervous system and occasioned periods of apathetic melancholy which he could not shake off, and which rendered all work impossible during their continuance, nothwithstanding that his mental powers remained unimpaired. He then sought the more genial climate of Italy, and took up his residence with his relative, Signor Pisani, Villa Pisani, near Lucca. Here he devoted himself to collecting and studying Italian insects, and to amassing an entomological library, which eventually became most extensive; but his contributions to entomological literature have been few of late years. In 1868 he visited Sicily, in company with his friend Dr. Perceval Wright, and in the same year took a prominent part in establishing the Italian Entomological Society which promises to become most useful and flourishing. The fatigues of this Sicilian journey, and the insalubrity of the climate, seemed to tell severely upon him; and on the 12th of last July he died, at the age of 63, his friend Dr. Wright having been hastily summoned to his bedside, and arriving in time to receive his last requests; to this gentleman, his colleague in the editorship of the "Natural History Review," we are indebted for much of the information we have been enabled to give of his early life. We believe there is some hope that his collections, with the types contained therein, may eventually be deposited in the British Museum.

THE GENERA OF *HESPERIDÆ* IN THE COLLECTION OF THE BRITISH MUSEUM.

BY ARTHUR G. BUTLER, F.L.S., &c.

(Continued from p. 58).

Genus Myscelus, *Hübner*.

Verz. bek. Schmett., p. 110 (1816).

Typical species, ***M. nobilis***, Cramer.

M. nobilis, Cramer; ***M. Santhilarius***, Latr.; ***M. Assaricus***, Cramer.

Genus Erycides, *Hübner*.

Verz. bek. Schmett., p. 110 (1816).

Differs from ***Pyrrhopyga*** in the slender abbreviated hook of the antennæ. ***E. Palemon***, Cramer; ***Cleanthes***, Latr.; ***Telmela***, Hewits.; ***Pyramus***, Cramer; ***Thrasea***, Hewits.; ***Plutia***, Hewits.; ***Pygmalion***, Cramer; ***Urania***, Hewits.; ***Pialia***, Hewits.; ***Papias***, Hewits.; ***præcia***, Hewits.

The second, third, fourth and fifth of the above species appear to differ in neuration, and may have to be erected into a distinct genus.

Genus Carystus, *Hübner*.

Verz. bek. Schmett., p. 114 (1816).

Typical species, ***C. Jolus***, Cramer.

The members of this genus are generally placed in ***Hesperia***: they are remarkable for the great length of their antennæ, which in other respects resemble those of ***Pamphila***.

C. Jolus, Cramer; ***Phorcus***, Cramer; ***Bursa***, Hewits.; ***Fischeri***, Latreille; ***Claudianus***, Latr.; ***Catargyra***, Felder; ***Marcus***, Fabr.; ***Precas***, Cramer; ***Fantasos***, Cramer; ***Philander***, Hopffer; ***Artona***, Hewits.

Section B.—*Hesperia*, Swains. (nec *Fabr.*).

C. Irava, Moore; ***Cerymica***, Hew.; ***Laufella***, Hew.; ***Cœsena***, Hew.; ***Chiomara***, Hew.; ***Sinon***, Cramer; ***Sergestus***, Cramer; ***Coridon***, Fabr.; ***Cynisca***, Swains.; ***Itea***, Swains.; ***Celsus***, Fabr.; ***Basochesii***, Latr.; ***Certima***, Hew.; ***Lucas***, Fabr.

Section C.—*Cobalus*, Hübner.

Verz. bek. Schmett., p. 114 (1816).

Typical species, ***C. Virbius***, Cramer.

Hind-wings generally shorter than in typical ***Carystus***, and never longitudinally streaked on the under-surface.

C. Virbius, Cram.; ***Physcelia***, Hew.; ***Lafrenayii***, Latr.; ***triangularis***, Hübn.; ***Calvina***, Hew.; ***Attina***, Hew.; ***Cœsina***, Hew.; ***Elia***, Hew.

Genus PROTEIDES, *Hübner*.

Verz. bek. Schmett., p. 100 (1816).

Typical species, *P. Mercurius*, Fabr. (*Idas*, Cr.).

The species resemble those of the genera *Goniuris* and *Telegonus*, but differ in having the antennæ of *Pamphila* (typical).

P. Idas, Cram.; *Ægita*, Hew.; *Evadnes*, Cram.; *Epitus*, Cram.; *Orchamus*, Cram.; *Brino*, Cram.; *Ovinia*, Hew.; *Amyntas*, Fabr.; *Xanthoptes*, Hübn.; *Lutetia*, Hew.; *Propertius*, Fabr.; *Ambasa*, Moore; *Helops*, Drury; *Comus*, Cram.; *Erinnys*, Trimen.

Genus PAMPHILA, *Fabricius*.

Illiger's Mag., vi, p. 287 (1808).

Typical species, *P. Comma*, Linn.

Section A.—*Calpodes* (part), Hübn.

P. Ethlius, Cram.; *Nero*, Fabr.; *Nyctelis*, Boisd.; *borbonica*, Boisd.; *Micipsa*, Trimen.

Section B.—*Talides*, Hübn.

Verz. bek. Schmett., p. 106 (1816).

Typical species, *T. Athenion*, Hübn.

P. Athenion, Hübn.; *Ætna*, Boisd.; *Vestris*, Boisd.; *Ares*, Feld.; ? *Balanos*, Boisd.; *Herminierii*, Göd.; *Accius*, Sm. Abb.; *Arpa*, Boisd.; *Aria*, Moore; *Niso*, Linn.; *Marchalii*, Guér.

Section C.—*Gegenes*, Hübner.

Verz. bek. Schmett., p. 107 (1816).

Typical species, *G. pygmæa*, Hübn. (=*Nostrodamus*, ♂, Fabr.).

P. Nostrodamus, Fabr.; *Mathias*, Fabr.; *Julianus*, Fabr.; *guttata*, Bremer.

Section D.—*Pamphila*, Fabr.

The antennæ vary in this section, especially in length.

P. Namagua, Boisd.; *Phocion*, Fabr.; *Taumas*, Fabr.; *pustula*, Hübn.; *Brettus*, Boisd.; *vibex*, Hübn.; *fasciolata*, Blanch.; *Phyleus*, Drury; *Augias*, Linn.; *Confucius*, Feld.; *Augiades*, Feld.; *Phineus*, Cram.; *Prusias*, Feld.; *venezuelæ*, Hew.; *Comma*, Linn.; *mesogramma*, Latr.; *Sylvanus*, Esper; *Baiva*, Boisd.; *Enys*, Boisd.; *campestris*, Boisd.; *Zabulon*, Boisd.; *Otho*, Sm. Abb.; *Vitellius*, Sm. Abb.; *Dara*, Kollar; *Sunias*, Feld.; *Maro*, Fabr.; *Mæsa*, Moore; *Epictetus*, Fabr.

Section E.—*Phlebodes*, Hübner.

Verz. bek. Schmett., p. 107 (1816).

Typical species, *P. pertinax*, Cramer.

P. Rona, Hew.; *Aletes*, Hübn.; *Almodæ*, Hew.; *Æpitus*, Hübn.;

cerdo, Boisd.; *Bacis*, Boisd.; *Philemon*, Fabr.; *Orchomenes*, Boisd.; *immaculata*, Hew.; *Remus*, Fabr.; ? *Corades*, Feld.; ? *Hilas*, Wllgr.; *Stolas*, Boisd.; *pygmæa*, Fabr.; *inconspicua*, Bertol.; *textor*, Hübn.

Genus APAUSTUS, *Hübner.*

Verz. bek. Schmett., p. 113 (1816).

Typical species, *A. Menes*, Cramer.

This is *Ancyloxypha* (part) of Felder, and is intermediate in structure between *Thymelicus* and *Pamphila* (Sect. *Phlebodes*); *A. Menes*, Cram.; *A. Saturnus*, Fabr.

We have a remarkable new genus allied to the above in which the males possess a large radiating tuft of hair at the base of the hindwings; the two species in the Collection have not yet been determined.

Genus THYMELICUS, *Hübner.*

Verz. bek. Schmett., p. 113 (1816).

Typical species, *T. Actæon*, Esper.

This genus may at once be distinguished from *Pamphila* by the absence of a hook to the antennæ, and the peculiar formation of the palpi.

T. Numitor, Fabr.; *linea*, Denis; *Actæon*, Esper; *nanus?* H. Sch.

Genus PYRGUS, *Hübner.*

Verz. bek. Schmett., p. 109 (1816).

Typical species, *P. Syrichtus*, Fabr.

P. lavateræ, Esper; *marrubii*, Ramb.; *altheæ*, Hübn.; *alceæ*, Esper; *Proto*, Esper; *orbifer*, Hübn.; *Sao*, Hübn.; *malvæ*, Linn.; *malvarum*, Esper; *Andromeda*, Wllgr.; *Nerva*, Fabr.; *sidæ*, Esper; *tessellum*, Hübn.; *cribrellum*, Kinderm.; *phlomidis*, Friv.; *Galba*, Fabr.; *vindex*, Cram.; *Sataspes*, Trimen; *Spio*, Linn.; *maculatus*, Brem.; *Elma*, Trim.; *Diomus*, Hpffr.; *Mohozutza*, Wllgr.; *centaureæ*, Ramb.; *Syrichtus*, Fabr.; *Domicella*, Erichs.; *Asychis*, Latr.; *ruralis*, Boisd.; *naso*, Fabr.

Genus LEUCOCHITONEA, *Wllgr.*

Kongl. Svenska Vetensk. Akad. Handl., p. 52 (1860).

Typical species, *L. Levubu*, Wallengren.

L. Arsalte, Linn.; *ericetorum*, Boisd.; *Laginia*, Hew.

Genus BRONTIADES, *Hübner.*

Verz. bek. Schmett., p. 113 (1816).

Typical species, *B Procas*, Cram.

The wings proportionably longer, the eyes smaller, the head projecting farther in front of the wings, and the antennæ straighter, than in the preceding genus.

B. Procas, Cram.

Genus ANCISTROCAMPTA, Felder.

Wien. Ent. Monatschr., 6, p. 183 (1862).

Typical species, *A. Syllius*, Felder=*Hiarbus*, Cramer.

A. Hiarbus, Cram.

Form of body as in *Astictopterus*, Feld., antennæ of *Brontiades*.

Genus ASTICTOPTERUS, *Felder*.

Wien. Ent. Monatschr., 4, p. 401 (1860).

Typical species, *A. Jama*, Felder.

A. Jama, Feld.; *Sindu*, Feld.; *Lepeletierii*, Gödart; *inornatus*, Trim.; *Diocles*, Moore.

PLASTINGIA, *new genus*.

Allied to the preceding and to *Pamphila* (typical section), with the form and build of the latter; palpi with last joint prominent, antennæ much elongated, and terminating in a gradually curved whip-like hook. Typical species, *P. flavescens*, Felder.

The species in the British Museum are—*P. flavescens*, Felder; *tessellata*, Hew.; *callineura*, Felder; *extrusa*, Felder.

Genus CERATRICHIA, *Butler*.

Fabr. Cat. Diurn. Lepid., p. 274 (1869).

Typical species, *C. notha*, Fabr.

C. notha, Fabr.; *C. Phocion*, Fabr.

We have a third species of this genus in the Collection, but without a name.

Genus PLESIONEURA, *Felder*.

Wien. Ent. Monatschr., 6, p. 29 (1861).

Typical species, *P. curvifascia*, Felder.

P. Feisthamelii, Boisd.; *curvifascia*, Feld.; *Folus*, Cram.; *Eligius*, Cram.; *Putra*, Moore; *Chamunda*, Moore; *Ambareesa*, Moore; *Pulomaya*, Moore; *maculosa*, Feld.; *leucocera*, Koll.; *Galenus*, Fabr.; *Mokeesi*, Wllgr.; *Dan*, Fabr.; *Fatih*, Koll.

Genus NETROCORYNE, *Felder*.

Reise der Novara, 3, p. 507 (1867).

Typical species, *N. Repanda*, Felder.

N. Repanda, Felder.

A second un-named species in the British Museum from Ceylon nearly resembles *Plesioneura Fatih* in form and coloration, but not in its antennæ.

Genus TRAPEZITES, *Hübner*.

Verz. bek. Schmett., p. 112, n. 1207 (1816).

Typical species, *T. Symmomus*, Hübner.

T. Symmomus, Hübner; *Phigalia*, Hew.; *Jacchus*, Fabr. (*Eliena*, Hew.); *Petalia*, Hew.

Genus TELESTO, *Boisduval*.

Voy. de l'Astrolabe, p. 164 (1832).

Typical species, *T. Dirpha*, Boisd.

T. Gremius, Fabr.; *Perronii*, Latr. (*Doclea*, Hew., and *Kochii*, Feld.); *Dirphia*, Hew.; *picta*, Leach; *ornata*, Leach; *Ogygia*, Hew.; *Halyzia*, Hew.

The above genus has much in common with *Pamphila*, but may be at once distinguished by its antennæ, which more nearly resemble those of *Cyclopides*.

Genus CYCLOPIDES, *Hübner*.

Verz. bek. Schmett., p. 111, n. 1202 (1816).

Typical species, *C. Steropes*, Denis & Schiff.

C. Steropes, Den.; *Sylvius*, Hüb.; *Paniscus*, Linn.; *Malgacha*, Boisd.; *Metis*, Drury.

Genus EUMESIA, *Felder*.

Reise der Novara, 3, p. 504 (1867).

Typical species, *E. semiargentea*, Felder.

E. semiargentea, Feld.

I do not see that this genus differs much from *Cyclopides* or *Carterocephalus*: it certainly does not link the *Satyrinæ* and *Hesperidæ*.

Genus CARTEROCEPHALUS, *Felder*.

Verh. zool.-botan. Gellesch. Wien, p. 494 (1862).

Typical species, *C. exornatus*, Felder.

C. dimidiatus, Feld.; *Cypselus*, Feld.; *Agathocles*, Feld.; *Epiphanus*, Feld.

PARDALEODES, *new genus*.

Allied to *Cyclopides* and *Pamphila*, from the former of which it differs in its much more elongated and suddenly hooked antennæ, and shorter and less hairy palpi; from the latter in the broader discoidal cell of front-wings, the first sub-costal branch emitted nearly in a straight line with the origin of the first median, all the branches of the sub-costal wider apart; the lower disco-cellular of front-wings shorter; it differs from both genera in the greater distinction between its sexes, and most nearly approaches the *Mars* group of the typical section of *Pamphila*.

Typical species *P. Edipus*, Cramer.

P. Edipus, Cram.; *Laronia*, Hew.

We have two other species un-named in the Collection. All the species are from West Africa.

Genus TARACTROCERA, *Butler*.

Fabr. Cat. Diurn. Lepid., p. 279 (1869).

Typical species, *T. Mævius*, Fabr.

T. Mævius, Fabr.; *Sagara*, Moore; *Danna*, Moore; *Coras*, Cram.; *flavovittata*, Latr.; *Papyria*, Boisd.; *Ceramas*, Hew.

The species of *Taractrocera* may be at once detected by the form of the antenna, which resembles that of *Argynnis;* the palpi are similar to those of *Apaustus* and *Thymelicus*.

Genus PYTHONIDES, *Hübner*.

Verz. bek. Schmett., p. 110 (1816).

Typical species, *P. Jovianus*, Cramer.

P. Tryxus, Cram.; *Sallei*, Feld.; *Orcus*, Fabr.; *Cronion*, Feld.; *festivus*, Erichs.; *Loxus*, Hewits.; *Lerina*, Hew.; *pseudojovianus*, Westw.; *Jovianus*, Fabr.; *Lancea*, Hew.; *Limæa*, Hew.

Sub-Genus PARAMIMUS, *Hübner*.

Verz. bek. Schmett., p. 115 (1816).

Typical species, *P. Scurra*, Hübner.

P. Scurra, Hübn.; *P. stigma*, Feld.; *P. Hemes*, Cram.; *P. Lucaria*, Hew.

Genus THANAOS, *Boisd*.

Icon. Lép. Am. Sept., p. 240 (1832).

Typical species, *T. juvenalis*, Fabr.

T. Tages, Linn.; *Cervantes*, De Grasl.; *quercûs*, Boisd.; *rusticanus*, Butl.; *juvenalis*, Fabr.; *tristis*, Boisd.; *clericus*, Fabr.; *Catullus*, Fabr.; *sericeus*, Freyer; *Kobela*, Trim.; *Westermannii*, Latr.; *Daunus*, Cram.; *Pato*, Trim.

The genus *Nisoniades* cannot stand, as its type is an *Achlyodes*.

Genus ACHLYODES, *Hübner.*

Verz. bek. Schmett., p. 107 (1816).

Typical species, *A. Busiris*, Cramer.

A. nigrina, Boisd.; *obscura*, Hüb.; *Mithridates*, Fabr.; *papiniana*, Poey; *Thraso*, Hüb.; *Sebaldus*, Fabr.; *mexicana*, Feld.; *Melander*, Cram.; *Asychis*, Cram.; *Thrasibulus*, Fabr.; *sanguinalis*, Hew.; *Velasquez?* Lucas; *chlorocephala*, Latr.; *Satyrina*, Feld.; *Nyctineme*, Boisd.; *Herennius*, Cram.; *Bromius*, Stoll.; *Flyas*, Cramer.

Genus ANTIGONUS, *Hübner.*

Verz. bek. Schmett., p. 108 (1816).

Typical species, *A. Ustus*, Hübn. (*Nearchus*, Latr.).

A. Nearchus, Latr.; *erosus*, Hübn.; *Syrichthus*, Feld.; *Helias*, Feld.; *angulatus*, Feld.; *Phagesia*, Hew.

The above genus is chiefly distinguished from *Achlyodes* by the peculiar form of the wings: it is adopted by Dr. Herrich-Schäffer, although he rejects the far more distinct genus *Helias* upon the supposition that Hübner may not have figured the proper insect as *phalænoides* (the type of the Fabrician genus), but since the latter is a common species and presents the character of the long palpi, pointed out by Fabricius, it is highly probable that the insect figured by Hübner is the species intended by Fabricius: Felder's *Antigonis* (*Nymphalinæ*) is too near the above, and should be changed.

Genus HELIAS, *Fabricius.*

Syst. Gloss. in Ill. Mag. 6, p. 287 (1807).

Typical species, *H. phalænoides*, Hübn.

H. phalænoides, Hübn.; *palpalis?* Latr.; *albiplaga*, Feld.; *hæmatospila*, Feld.; *noctua*, Feld.; *Lacæna*, Hew.

The genus *Helias* has the general characters of *Antigonus*, but differs in its long palpi: some of the species (♂s of *noctua* group) have the hind-wings deeply dentated and scalloped.

Genus CAPRONA, *Wallengren.*

Kongl. Svenska Vetensk. Akad. Handl., p. 51 (1860).

Typical species, *C. pillaana*, Wllgr.

C. Canopus, Trim.

But for the antennæ, which somewhat remind one of those of *Pyrrhopyga* or *Telesto*, this genus might have sunk into a section of the preceding with *A. Lacæna*, the form of wings and general character of the markings being very similar to that species.

Genus TAGIADES, *Hübner*.

Verz. bek. Schmett., p. 108 (1816).

Typical species, *T. Japetus*, Cramer.

T. atticus, Fabr.; *Gana*, Moore; *Japetus*, Cram.; *Ravi*, Moore; *Helferi*, Feld.; *Menaka*, Moore; *Adrastus*, Cram.; *Flesus*, Fabr.; *Sinica*, Feld.; *Celebica*, Feld.; *Sambara*, Moore; *Gopala*, Moore; *Pralaya*, Moore; *Prodicus*, Stoll.; *Dasahara*, Moore.

With the above genus I conclude the genera in the British Museum. Concerning genera not in the Collection, I should be unwilling to express any decided opinion; but I think one or two figured genera look rather close to others previously described, as, for instance, *Oxynetra* to *Pyrrhopyga*, *Darpa* to *Antigonus*, *Capila* and *Pisola* to *Hesperia*, Fabr. I cannot imagine what induced the Felders to redescribe their genus *Plesioneura*, or to place a number of *Pythonides* in *Leucochitonea;* but Dr. Herrich-Schäffer has already said all that was necessary (and perhaps rather more) concerning these inadvertencies, and therefore there is the less reason why I should say anything further respecting them.

My genus *Udranomia* would, perhaps, be more correctly rendered *Hydrænomia*, from the greek '*udrainō* (I sprinkle with water); the typical species being sprinkled with small glassy specks. I do not think this will be too near to *Hydronomus* or *Hydræna*.

British Museum, July, 1870.

DESCRIPTION (WITH NOTES ON VARIATION) OF THE LARVA OF *DEILEPHILA LIVORNICA*.

BY REV. J. HELLINS, M.A.

At page 61 of this Volume, I announced the capture, near Exeter, of a supposed larva of *Deilephila galii* on July 11th. The said larva soon spun up, and resulted, on August 18th, in *Deilephila livornica*, ♀. For once, therefore, I was agreeably disappointed in breeding something better than I expected; and this, so far as it goes, is satisfactory. It is less satisfactory to have to ackowledge that I made a mistake. My excuse is this: I did not name my larva without thought; my first impulse was to call it *livornica*, but the descriptions I consulted under that name did not suit; the points laid down in them as distinctive characters I could not find; and driven, as it appeared, from my half-formed hope, I was obliged to persuade myself that my prize was *galii*, a species of which I had once seen two larvæ, more than ten years ago; so, setting aside the objection arising from the time of year, or rather attributing its early appearance to the unusual heat, I penned and sent off my announcement to the Editors.

I now offer a description of my larva, made with Mr. Buckler's good help; and shall then add notes communicated to me of other larvæ found in South Devon and Cornwall.

The length of the larva, when stretched out, is about 3½ inches; the head is the smallest segment, the body tapering towards it from the 5th segment; the anal prolegs broad and square, *the horn slightly curved, blunt at the tip,* and rough; the skin rather shining, but on the hinder half of each segment showing seven folds, well defined at the sides, and not so distinct on the back, where the skin seems tighter. The ground colour of the back and sides, as far as the spiracles, is an intensely dark green; the head black, but with a streak across the mouth, as well as the base of the papillæ, lemon-yellow; the plate on the second segment black; commencing on the third segment, and continued to the horn, an ochreous-yellow dorsal stripe, suffused with rose-pink, and bordered for some little width on each side by the plain ground colour; a sort of transverse band, also of the ground colour, placed on the front of each segment, and extending from the dorsal line to below the sub-dorsal; the rest of the side irrorated with small greenish-yellow spots, becoming more whitish near the spiracles; on the lower ends of the above-mentioned bands on segments four to twelve, and just in the region of the *well-defined, greenish-yellow, freckled, sub-dorsal line* (in fact, strung on it like beads on a string), a row of nine large roundish lemon-yellow spots tinged in the upper part with pink; and made all the more conspicuous from being delicately bordered with black, with two largish spots of black also on their upper border; on segment three, no spot, but only the sub-dorsal line; the spiracles ochreous-yellow, tinged with pink; just below them, an inflated and puckered stripe—yellow on the second segment, but whitish on all the rest, and interrupted just behind the middle of each segment by a large round spot of pink, slightly tinged with olive; the belly also pinkish; the true legs black; the ventral prolegs pinkish-white, tipped in front with a spot of black; the anal prolegs black; a pink edge at side of anal flap. I have called the sub-dorsal spots roundish, but in reality the shape is somewhat that of a dumpy pear, with the short stem pointing forwards and upwards; whilst the last spot in the row, that on segment twelve, may be described as of an elongated pear-shape, with the point directed backwards and upwards towards the horn.

Unfortunately, I did not examine the pupa with a view to description, but I saw that it was long, of a light brown colour, with the last two segments darker brown, the anal spike strong and sharply pointed, but with no other projection to break the outline. It was placed on the surface of the earth, and the cocoon was but slight, being formed of a few bits of earth and withered fuchsia flowers, just tacked together with a few silken threads, and many interstices being left through which the pupa could be seen.

I shall next copy the notes, which, together with a figure, were kindly furnished me by Mr. W. C. Marshall, of a larva taken by Mr. L. Cumming, near the Lizard, Cornwall.

The head and second segment, and the anal prolegs all deep pink; the dorsal line yellow; the horn red and rough; the ground colour dark green, freckled with yellow, save in the transverse bands on the front of each segment; the sub-dorsal line yellow, but without the row of roundish spots; the belly yellowish. This seems the palest specimen I have heard of. Nearest to it, and in fact intermediate between it and my Exeter larva, comes one captured near Plymouth, and described and figured by Mr. G. C. Bignell: the head and second segment dull pink; the dorsal line yellow; the ground colour blackish, much freckled with yellow; the sub-dorsal line yellow; the sub-dorsal row of spots yellow, with pink centres; the anal prolegs dull pink; the belly whitish-yellow; the horn red, tipped with black, and rough.

But another larva, described to me by Mr. J. Gatcombe, was much darker, and must have come near to Fuessly's description quoted in Stainton's Manual; it had the head and second segment black, an intensely black stripe all down the back, the transverse bands black, and enclosing, at their extremities, semi-lunar spots of yellowish-white on the sub-dorsal line; the pinkish suffusion of the round spots of other specimens being in this case replaced with black, and so the usual outline of the spots was altered; the rest of the back and sides blackish, irrorated with greenish-drab; the belly also very dark; the horn dark purplish.

Now, if it be lawful, as I believe it is, to add to these notes of four larvæ taken in Devon and Cornwall this summer, a few words from Boisduval's descriptions of *Deilephila lineata* (his *lineata* being the *livornica* of Hübner and Esper, and so of our lists), I think we shall come to the conclusion that he is quite right when he speaks of it as "*cette belle chenille, qui varie beaucoup;*" and that after granting it the usual form and outline of a *Deilephila* larva, the really permanent distinctive mark is the sub-dorsal pale line, generally bearing on it the row of pale spots.

Boisduval then first figures a specimen with deep red head, second segment, dorsal line, horn, and anal prolegs: he calls the ground colour "*noirâtre ou d'un brun roussâtre;*" he makes the transverse bands black; the sub-dorsal line and row of spots pale yellow; he gives the yellowish irroration, and makes the belly pinkish, and the horn slightly curved. Some way further on he figures, without description, a variety all over palish green; with lilac dorsal stripe, sub-dorsal row of whitish spots, suffused with pink, and placed on a whitish line; the sides irrorated with white spots; a pinkish sub-spiracular line, and a brown *straight* horn; but I fancy this figure was taken from an inflated skin, which would somewhat account for the unusually pale colour, and for the shape of the horn.

He also calls the larva "*polyphage,*" as it indeed appears to be; I have heard of six specimens taken on a vine; Mr. Cumming's larva was found on dock; Mr. Bignell's was figured on knot-grass; mine ate fuchsia greedily, although the rustic who brought it to me in his neckerchief, assured me he found it among mangolds, and that it ate grass after he had carefully wrapped it up.

My note grows lengthy, but—believing that this will hereafter be known as the "*livornica* year"—I shall add the information given me by Mr. T. Terry (who, from the height of good luck in getting twelve larvæ from eggs laid by captured moths, fell into the depths of misfortune through poisoning all his brood with greenhouse vine leaves), and shall then conclude with a guess.

The eggs were light green, glued to the flowers of red valerian, which had been put in for the sustenance of the moths; the larvæ were hatched in about three weeks; their colour at first dirty white, without any spots, but with the head and horn black; at the end of their second week they began to assume markings; and, when they died, the longest was about an inch and half in length; the head, back, horn, belly, and legs were all intensely black; but the segmental folds showed paler, so as to give the appearance of alternate lighter and darker bands; the sub-dorsal line was red, as well as the sub-spiracular; the sides were dotted with yellow, and, as far as I can gather, the sub-dorsal spots seem to have made their appearance, and to have been red: apparently, these larvæ, had they lived to put on their last coat, would have been like the dark variety described by Mr. Gatcombe.

My guess is this: the perfect insect hybernates; it pairs, and lays its eggs in May or June; the larvæ hatch and feed up in June and July; the pupa-stage lasts about four weeks, when the moth comes forth to remain on the wing for a longer or shorter time previous to hybernation.

Exeter: *September 8th,* 1870.

ON THE HABITS OF *PLATYPUS CYLINDRUS*, FAB.

BY T. ALGERNON CHAPMAN, M.D.

This beetle has been well described by Ratzeburg in his "Forstinsecten," and the larva is well described and figured by Perris; but neither of these authors gives much detail as to its habits, or, indeed, appears to have met with it in sufficient abundance to make many observations with regard to those habits.

Platypus cylindrus burrows into the solid wood, and, in consequence, is rather difficult to observe; the gnarled texture of a solid and by no means rotten oak stump being a most unpromising material to slice up in order to expose the burrows of the beetle. These burrows, in which both perfect insects and larvæ are found, have always an extremity open on the side of the stump. They are of uniform diameter throughout, viz., that of the full-grown larva and perfect beetle,—presenting no narrow burrows of young larvæ, as observation of most of the other *Xylophaga* would have led us to expect. And the inhabitants are not confined each to its own branch of the burrow, but the larvæ, to the number of from sixty to a hundred, together with the perfect beetles, their parents, run actively backwards and forwards in the burrows, and from one branch to another, getting out of each others way, backing into a branch to let another larva pass, just as a train is shunted into a siding. The following observations leave untouched several points in the history of *Platypus* which I should have liked to have cleared up, for which my excuse must be the difficulty of tracing the proceedings of the insects in the centre of the solid masses of oak they inhabit.

The usual habitat of *Platypus* is in oak stumps, but I have met with it also in beech. After a tree has been cut down, although the stump may throw up no shoots, it yet maintains for a time a sort of life, portions of bark for instance even two or three years afterwards looking much like that from a living tree. It is in such stumps that *Platypus* makes its burrows, and in those parts of them which, though to all appearances sound, have, one or more years after the fall of the tree, entered into the first stage of decay. What appears to be essential is the presence in the wood of a certain fungus, which probably lives in the fermenting and decomposing sap. I shall recur to this fungus when mentioning my observations on the young larva.

After a brood, or rather colony, has been reared in one part of a stump, another part which has meantime reached the proper condition is often attacked in the following year, so that it may happen that one part of a stump is quite rotten, whilst another is still tenanted by the beetle; but, wherever there are larvæ still feeding, the wood continues apparently sound.

There is another point which seems important, that is, the position of the stump. I have rarely found them in stumps on level ground, but nearly always in those on a steep slope. This probably arises from the earth above yielding a supply of moisture to the latter, whilst there is sufficient drainage below, and the wood is thus kept of a proper dampness. It must moreover arise to some extent from stumps on a slope presenting on the lower side an abundant surface, from which the beetles can make their attack; as they always bore inwards horizontally or slightly upwards, they thus command nearly the whole stump; whereas with a stump whose surface is level with the ground they can command very little of it.

During July and August the beetles emerges from the pupal state, the greater number during the last week in July, and at this period they commence their burrows; on July 15th I found such a burrow nearly three inches in depth. Occasionally an odd burrow is to be found, but usually the burrows are in colonies, and as many as fifty entrances may be found on the side of a stump, scattered over a surface twelve to fifteen inches wide and four or five high. The burrows are often begun on a smooth surface, but usually any little hollow or irregularity is taken advantage of, in commencing the burrow. I have a fine specimen, in which a strip of bark had been removed from the side of a large root, and the margin was cicatrising; in the angle all round this surface the entrances of burrows were closely placed, only one or two others being present at other points. The burrow from its mouth on the surface of the stump is a perfectly clean-cut cylinder.

Each burrow is tenanted from its commencement by a pair of beetles. Both beetles and full-grown larvæ feed on the wood, and when they are doing so, they eject little rounded nodules of frass, which have obviously passed through their alimentary canals. In the case of *Hylesinus fraxini*, and several other *Xylophaga*, I have satisfied myself that the parent beetles eat the removed material when they are forming their burrows of oviposition. With *Platypus*, however, this is not the case. In forming its burrows it does not eat the removed material, and, instead of the end of the burrow being rounded, it is at this period flat, *i.e.*, a plane at right angles to the axis of the burrow; and the ejected frass is not found in the little rounded pellets afterwards observed, nor in little lenticular bitten pieces, which appears the only other alternative, but in very fine splinters, most of them of a length equal to the diameter of the burrow. I may remark here that this burrow is always made across the fibres of the wood. The ejected frass, which forms a little heap outside the burrow, looks very different from that afterwards thrown out. Both sometimes accumulate to such an extent as to bury the mouth of the burrow; and, if the frass should be matted together by being wetted, the burrow often extends through it to the surface, occasionally forming a tubular addition of an inch or more in length, but this is a purely accidental occurrence.

I had the good fortune on one occasion to observe the process of separating this splintery variety of frass. I had so split a piece of wood as to expose a burrow within a few lines of its inner extremity. In this burrow was a beetle that could not in these circumstances completely hide itself. It continued, however, to work, and kept ejecting frass of this description. It moved very gently, as beetles do when moving their jaws, with the exception that every ten seconds it came out with a sudden jerk for a distance equal to one-third its own length; so one could not help concluding that something it was pulling at had suddenly given way. I think that I am justified in inferring from this that these little splinters are bitten through at one or both ends, and then laid hold of and separated by a pull ending in the sudden jerk resulting from the bit of wood becoming loose.

I may mention that, when perfect, the beetle has very long slender tarsi, and that it is a matter of notoriety that these are usually broken. This is almost invariably the case with those beetles that have formed a burrow; they often possess no tarsi whatever, except about half of the basal joints. It occurred to me that this sudden jerk sufficient explained the want of tarsi. Such a beetle, when extracted from his burrow, is utterly helpless, yet in this state he manages to run backwards and forwards in his burrow with great facility, and to live there in apparent health for many months; moreover, as he never naturally leaves the burrow again, the loss must be of but little consequence. The newly-emerged beetles, that is, those possessing their long and delicate tarsi, do not seem comfortable on a smooth surface, but over a rough piece of bark they can run with great agility. I suspect, though on this point I have made no observations, that they find them very useful in sustaining the body in a proper position at right angles to the surface of the wood or bark in commencing their burrows. As to the mechanism of this jerk by which the splinters are separated, the anterior femora are extremely broad (or, rather, deep), from which circumstance indeed the genus is named; and they are not by any means narrowed in the other diameter, but are extremely strong limbs; the anterior tibiæ are, externally, diagonally ridged, but in such a way that, though the ridges are diagonal to the tibia, they are, when it is in its usual position, transverse to the burrow, and are sharpest forwards, so that they must give a very firm hold of the wall of the burrow when the beetle uses his strong femoral muscles to push himself backwards.

Although the jaws are, as usual, directed forwards, their sharp, cutting edges are quite in advance of the beetle, when the head is in its normal position, and are thus beautifully adapted for cutting the wood round the side of the burrow at its extremity, and, by a change in the position of the head, may serve to seize the fibre of wood to pull it off.

When the burrow is some six or seven inches in length, a rounded extremity is made to it, in which the female deposits her eggs, and it is for the time abandoned, the parent beetles commencing the construction of a branch. Eggs are laid as early as the beginning of August, and as late as the end of October, and usually, I think, in recently constructed branches of the burrow. I have found single eggs, and groups of two or three, at various points in such a branch, but the proper place seems to be at the rounded extremity, as here I have found groups of nine, twelve, and even of twenty-three eggs. These are simply little masses or heaps of eggs lying loose close to the end of the burrow. In such burrows are also found the young larvæ; but before the larvæ are hatched there appears on the wall of the burrow a damp, greyish-white, felty-looking coating, sometimes narrowing the gallery to half its width; and it is the undisturbed appearance of this coating which leads me to believe such a branch of the gallery is for a time abandoned by the parent beetles. I have found such a gallery in November un-intruded upon, when other branches of the burrow contained half-grown larvæ; whether these kept out of it by their own instincts or were marshalled from it by their parents I cannot say. But of this there can be no doubt: during the autumn months several batches of eggs are successively laid in different branches of one system of burrows by the same parents, of which the first are often full-grown before the last are laid, and the burrows containing eggs and young larvæ are respected by all the other inhabitants of the burrow, notwithstanding the fact that the full-grown larvæ are very fond of this felty coating (which I have seen them scrape off the walls with their jaws with apparent gusto), and that there is no physical impediment in their way.

The greyish felt lining of the burrows consists of a mass of tubes belonging to the fungus to which I have already alluded. The tubes consist of a very thick wall filled with small rounded bodies (spores?), and similar structures may be found in the surrounding wood, which has a sweet heavy smell similar to that of freshly cut oak wood, but much more strong. The tubes that exist in the wood are no doubt properly to be regarded as mycelium; whether those in the burrows are so or an abnormal form of fructification I cannot say. I believe that this mycelium is not that of any of the larger fungi, but is probably that of some mould, or some species allied to the yeast plant.

(To be concluded in our next.)

Occurrence on the south coast of Baridius scolopaceus, Germ., a species new to Britain.—In June last, I captured a single specimen of *Baridius scolopaceus*, Germ., by promiscuous sweeping on the south coast.* *B. scolopaceus* is about the average size of our other British *Baridii*, but utterly unlike any of them, being densely clothed with brown scales, variegated above with white, the abdomen being sparingly scaled beneath with white. It seems to vary a good deal in the amount of scales,—M. Perris, indeed, having founded a new species at its expense, under the name of *vestitus*, with which my insect will probably best agree. M. Perris records his specimens as being taken among *Salicornia* and *Glaux*, at the foot of the plant, and it seems to be a not uncommon European species. I do not believe that either plant was to be found within half-a-mile of the spot where I took my insect, but my specimen may have strayed; at all events, I hope to investigate the matter more fully next season.

My insect has been compared by Mr. G. R. Crotch and it agrees very well with his *B. scolopaceus*, as also with the description in Germar's "Insectorum Species," p. 202. The single specimen representing *B. scolopaceus* in the Brit. Mus. Coll. does not quite agree with mine, being probably typical *scolopaceus*.—G. C. Champion, 274, Walworth Road, London, S., *September*, 1870.

Capture in Britain of Tomicus bicolor, Hbst.—I took last June, at Darenth Wood (I believe in oak), a single specimen of a *Tomicus*, which I refer to *bicolor* of Herbst, a species which has hitherto escaped record as British, although it has been taken in numbers by Mr. G. R. Crotch, at Down, in Kent. Its differences from *T. alni*, Georg (*Marshami*, Rye), have been already given in this Magazine.—Id.

Coleoptera near Manchester.—The following are the most noteworthy species I have taken in this district this year, and which, I believe, are hitherto unrecorded from that district (with one exception).

At Drinkwater Park, towards the end of the winter months, moss and hay-stack refuse yielded *Homalota villosula*, *setigera*, *silvicola*, *oblongiuscula*, and one ♂ example of *crassicornis;* and sifting dead leaves produced *Bolitobius inclinans* and *Hypocyptus pygmæus*.

At Stretford, on the banks of the Mersey, in flood refuse, beetles were exceedingly abundant during March;—*Ochthebius rufo-marginatus*, however, was the only species I observed worth notice in this place.

At Chatt Moss, in April, under pine bark, I met with a small family of *Phlœopora corticalis*, though I only secured one; in *Sphagnum*, *Hydroporus celatus* and *Gymnusa brevicollis* sparingly, and, by beating the pines later on, *Salpingus ater* and *Pissodes notatus* (the latter is doubtless well established in this locality): *Ceuthorhynchus punctiger*, by sweeping, and *Malthodes atomus* by beating sallow (also at Barton on the same tree).

At Clifton, with my friend Mr. Broadhurst, *Malthodes misellus*, ♂ and ♀, by sweeping under trees, chiefly oak; a subsequent visit by my friend in quest of this insect proved unsuccessful, *Malthodes dispar* having replaced it: under stones by the river side, *Geodromicus nigrita* and *Ancyrophorus homalinus*, in company and abundant.

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* This locality will, of course, interest Curculiophils in Cornwall as much as those in Kent.—Eds.

At Timperley, in July, *Orchestes scutellaris;* and at the Bollin, out of furze-bushes, *Saprinus* (*Gnathoncus*) *punctulatus*, which also occurred at Sale, on baits. —T. Morley, 57, John Street, Pendleton, Manchester, *September*, 1870.

Captures of Coleoptera in north Devon.—During the month of August last, I discovered localities for the following species, and which I make known for the benefit of entomologists who may visit Ilfracombe, or other of the beautiful spots on the North Devon Coast.

Mesites Tardii.—This species was first discovered by Mr. Wollaston in England —I believe at Mount Edgcumbe in South Devon, and afterwards at Lynmouth; I took a dozen specimens in a decaying sycamore close to Chambercombe Farm, near Ilfracombe. In company with them I found *Phlœophagus æneopiceus.*

Dianöus cærulescens.—This insect was abundant on mossy stones, in the brook, in the valley, about a quarter of a mile beyond Chambercombe Farm, at the side of the wood. With it was *Stenus Guynemeri.*—F. Smith, British Museum, *September*, 1870.

Notes on earlier stages of Scotch Phytophaga.—I observed *Melasoma* (*Lina*) *ænea* plentifully, both in the larval and pupal condition, on alders in this neighbourhood, at the end of last July. The pupa, which was active when touched, was attached by the tail to the upper-side of the leaf; the perfect insect appearing in about eight days.

I also found *Coccinella* 16-*guttata* commonly, in the middle of August, at Luss, Loch Lomond, in the same stages as the *Lina*, on birch. The larva—which is fat, yellowish-white, with two orange-yellow raised lines from head to tail, enclosing two rows of black spots, a lateral row of similar spots, and rather long prolegs,—begins to feed in the middle and not at the edge of the leaf. The pupa is fat, attached as in *Lina*, and, when irritated, jerks up the head, thorax and basal segments of its abdomen. It is blackish, its distinct and shield-shaped thorax bearing a triangular yellow patch on each side, and its abdomen having two yellow spots on each side of the base and three on each side of the apex. The insect remains about twelve days in the pupal state.—J. E. Somerville, Free Church Manse, Langholm, Dumfries, *September*, 1870.

Cynips longiventris, Hartig, a species new to the British list.—The hard gall of this *Cynips* is of about the size of a pea, rather flattened, single-celled. Its exterior is granulated, the ground colour a more or less dark red, traversed by more or less regular concentric rings of a pale yellow or greenish tinge. I have met with it for several years past in the months of July, August, and September, on the under-side of the leaves of stunted oak-bushes, occurring in hedge rows in this neighbourhood. It is mostly attached to the midrib, and I have never seen more than one or two specimens on the same leaf, and they are rather scarce. Hartig says that in Germany they are frequent but solitary.

The insect belongs to Section II of Hartig's genus *Cynips*, characterized by that author as follows: "*Abdomine apice nudo;*" and to his sub-division A, "*abdomine elongato, ano sub-acuto, segmento primo fere usque ad apicem prolongato,*" whilst the specific diagnosis runs as follows: "*C. longiventris*, Hartig: *a Cyn. folii vix distinguenda, nisi antennis articulis 2 ultimis connatis, colore rufo capitis, thoracis pedumque magis extenso. Long.* 1—1½ *lin.* ♀." (Germar's Zeitschrift f. d. Entomologie, 1840, Vol. ii, pp. 187 and 188).

I pen these lines to induce observers in all parts of the kingdom to look out for this gall, as its distribution in this country is unknown at present.

Notes on stations may be published in this Magazine, or sent by letter either to my friend, Mr. H. W. Kidd, of Godalming, or to myself.—ALBERT MÜLLER, Eaton Cottage, South Norwood, S.E., 26*th August*, 1870.

Occurrence of Pieris Daplidice in Epping forest.—A week or two ago, I paid a visit to my cousin, Mr. Walter Nash, of Sydenham, and he showed me a small collection of butterflies and moths which he had made in Epping forest, when he was there in 1866. Amongst them I found a fine male *Pieris Daplidice.* There is no doubt that he took it himself, and in Epping forest, for he has never been abroad, and never collected anywhere else; and, school-boy like, he pinned his insects with any pin that came first—the specimen in question being impaled with a rather large, undoubtedly English, black pin. This specimen, which he has very kindly given to me, is well set and in capital condition, with the exception that it has lost its antennæ.—ARTHUR COTTAM, St. John's Road, Watford, *September* 16*th*, 1870.

Capture of Vanessa Antiopa near Rochester.—I have to announce the recent capture of a fine female *V. Antiopa* at Delce, Rochester. It was flying about under a pear tree, attracted, I suppose, by the fallen fruit.—JAMES FLETCHER, Delce, Rochester, *August* 22*nd*, 1870.

Larva of Vanessa Antiopa.—When at Andermatt, on the 10th of August, I was looking amongst some little willows on the banks of the Reuss, and on one bush my eyes were gladdened with the sight (for the first time) of the larva of *Vanessa Antiopa.* It was nearly full-fed, and I thought looked sickly. I searched the bush well, hoping to find others, but neither there, nor on any neighbouring willow bush, could I find more of these handsome larvæ. The next evening, passing the same spot, I looked to see if my friend were still there, and regretted sadly that Emsworth was so far off; could I have placed it in Mr. Buckler's hands that evening, he would have made a splendid drawing of it. Its sickly look of the previous evening had passed away, and it was only the manifestly near approach to pupation (which could never have been safely accomplished on the journey, had I taken the larva) that induced me to leave it to enjoy its thin mountain air, nearly 5000 feet above the sea.

Curtis's figure gives a very good idea of the larva.—H. T. STAINTON, Mountsfield, Lewisham, *September 3rd*, 1870.

Argynnis Euphrosyne deceived.—I see a remark in this month's (August) "E. M. M." about *Lycæna Alexis* being deceived with bits of blue paper. This reminds me of a circumstance which came under my notice some years ago at Leigh. I was out larva-beating one very hot day early in the summer, and, while resting under the shade of a tree, noticed several specimens of *A. Euphrosyne* fly towards the handle of my umbrella which was lying on the ground near me, and which much resembled them in colour.—A. E. Hudd, Stapleton Lodge, Bristol, *August*, 1870.

Variety of Polyommatus phlœas.—A very beautiful variety of *Polyommatus phlœas*, now in my collection, was taken here last month by Mr. Edward Taylor, of Dalton. The specimen is very large, and has not a trace of the usual red or "copper" colour, which is entirely replaced by *white*. A nearly similar one was taken here some years ago.—Geo. T. Porritt, Huddersfield, 14*th September*, 1870.

Deilephila livornica near Maidstone.—On the 23rd of August, we had the good fortune to capture a splendid specimen of *Deilephila livornica*. It flew into a lighted room at Hunton, near Maidstone.—E. & H. Greville, Southfields, Wandsworth, *September* 8*th*, 1870.

Deilephila livornica near Plymouth.—During a fortnight's stay, in June last, at Cremyll, Mount Edgcumbe, Devon, I saw several specimens of *Deilephila livornica* hovering at dusk over the blossoms of the rhododendron in Mount Edgcumbe Park, but only succeeded in capturing one, their flight being so extremely swift and erratic; on one occasion I saw two at once.—W. T. Sturt, 4, Manor Road, Upper Holloway, *August* 22*nd*, 1870.

Additional occurrences of Deilephila galii and D. livornica near Exeter.—Mr. D'Orville has taken a second *D. galii* in his garden, and a neighbour of mine has taken a *galii* and two *livornica* over flowers of geranium. I have myself taken a decent specimen of the latter insect, just before 7 p.m. to-day, over flowers of "Marvel of Peru" in my garden: another, which I saw, but failed to capture, was attracted by white Petunias.—J. Hellins, Exeter, 17*th September*, 1870.

Deilephila galii at Newcastle-on-Tyne.—My brother brought me a fine larva of *D. galii* on the 7th of this month; it fed for a day or two upon bed-straw, and went into earth on the 11th. It was found in the engine-room of the Carlisle Railway in this town, and had probably been brought in with sand used for the engines. A friend, Mr. M. Henderson, found a small larva feeding on bed-straw on the coast near South Shields, about the middle of last month.

Can any of your correspondents give me a few hints as to the best means of keeping *Lasiocampa rubi*, and other hybernating larvæ, through the winter?—J. Hamilton, Secretary of the Newcastle-on-Tyne Entomological Society, 16*th September*, 1870.

Deilephila galii near Stroud.—The son of a clergyman, who lives near here, brought me an excellent specimen of *D. galii* a short time ago; it was caught in his garden.—G. Braund, Cairns Cross, Stroud, Gloucestershire, 14*th Sept.*, 1870.

Deilephila galii near Perth.—At the last (September) meeting of the Perthshire Society of Natural Science, Mr. T. Marshall exhibited a larva of *Deilephila* *galii*, found by him near Stanley (seven miles from Perth). It is eleven years since the larvæ of this hawk-moth have been found in Perthshire. In 1859 nearly two dozen caterpillars were captured within a few miles of Perth.—F. BUCHANAN WHITE, Perth, *September* 10*th*, 1870.

Deilephila galii near Kilmarnock.—One specimen of *D. galii* was caught, and two or three more seen, by my friend, Miss Stewart, near Kilmarnock, in Ayrshire, about the 18th of August.—W. DOUGLAS ROBINSON, Dalbeattie, N.B., *September*, 1870.

Occurrence of Catocala fraxini in the Regent's park.—My friend Mr. John Hodge took a specimen of *C. fraxini* at rest on an ash-tree, in the Regent's park, on the 9th inst.—JOSEPH POTTER, 9, Peckwater Street, Kentish Town, 12*th Sept.*, 1870.

Leucania albipuncta, &c., at Folkestone.—On the 18th of August, the same evening that my friend Mr. Vaughan was so fortunate (p. 87), though not in the same spot, I took a beautiful specimen of this rare *Noctua*. It was in such good condition that it was evidently fresh from the pupa. Among a whole host of specimens of *C. Cytherea*, *A. tragopogonis*, *A. suffusa*, and the ubiquitous *L. pallens* and *N. xanthographa*, I caught sight of my white-spotted friend deeply engaged in discussing the merits of my mixture. It did not take long, it may be imagined, to box it. There can be no possibility of confounding it with its plebeian relative *lithargyria* when thus fresh: in the latter, besides the great difference in size, the tint is altogether unlike that of *albipuncta*, which is *very* dark red, with the spot most conspicuous. The row of black spots on the fore-wings of *lithargyria* can with difficulty be traced on those of *albipuncta*, while there is on the latter, in addition, a faint row of short light dashes.

On the 23rd of August, I captured two more, and one again a few days later; these specimens were more or less worn, and two of them are so light in tint that they would probably at first be passed by as *lithargyria*,—though not by the entomologist who was acquainted with both. It is very curious that this *Noctua* should not have turned up in larger numbers before; and I cannot help thinking that specimens may exist in some cabinets, the owners of which are not aware of the rarity they possess.

Agrotis suffusa has been very plentiful, and *saucia* not rare. Fine specimens of *A. pyramidea* and *C. nupta*, and a few of *T. fimbria*, have also turned out to sugar.

Among the strange visitors to my posts, I noticed a field cricket, and a large green grasshopper particularly engaged with the thick body of a *Noctua*; and from one post a tiny harvest mouse beat a quick retreat. I believe it is a general opinion that the grasshoppers are not carnivorous. But this is an error, at any rate with *Locusta viridissima*, which is not a true grasshopper, but one of the *Locustidæ*; I have kept this species in captivity, and fed it with flies and small grasshoppers, which it devoured with great relish, catching them alive as it saw them move.—HENRY ULLYETT, Folkestone, *August*, 1870.

Lemiodes pulveralis and other Lepidoptera at Ranworth.—On July 27th last, in company with the Rev. E. N. Bloomfield, and a friend of his, an ardent botanist, I paid a visit to Ranworth fen. Our drive there was only enlivened by the appearance of a specimen of *Vanessa polychloros,* now a scarce species in this neighbourhood. The wind was chiefly from the north, but the butterfly was enjoying itself on the sunny side of a sheltered copse, till our anxious care provided a more secure shelter in a collecting box.

On our arrival at the fen we found, to our chagrin, that the wind was so strong and cold as to render collecting difficult as well as unproductive, but we were indebted to it for the best slice of luck in the day. On the sheltered side of one of the drain banks where the sun fell warm, *Hydrocampidæ, Crambidæ, &c.,* were in swarms, and very lively, and among them a single specimen of *Lemiodes pulveralis* turned up, perplexing us greatly by its novel appearance.

We worked hard and repeatedly for more, but without success, and, as nothing was flying, or could be induced to move in the open fen, set ourselves to investigate the interiors of the sallow and alder bushes, where we picked up *Apamea fibrosa, Eupithecia tenuiata, Peronea Shepherdana, Depressaria conterminella,* and various commoner things.

As evening drew on, *Nonagria despecta* flew in plenty on the sheltered side of an alder carr, and a single specimen of *Eupœcilia griseana* ventured out—and paid the penalty of his hardihood.

As it became dark, the wind rose still more, with heavy masses of threatening clouds, consequently the night was dark enough, and we turned it to account, having for an hour, in the shelter of the alder carr, the most lively sport of the day.

Lithosia griseola was flying commonly, and *stramineola* was by no means scarce, but *muscerda* was very so, and we only took four. *Leucania impura* was a great nuisance, but among them we got several *phragmitidis,* and a very early and large ♀ *Nonagria fulva;* this, with a most beautiful variety of *Orthotælia sparganella,* terminated our day's work.

As, to add to our difficulties, no food of any kind (nor even civility) was to be obtained at the only "public," and one of us had to walk three miles to procure a few biscuits, I think I may call this day one of the most decided cases of up-hill work that have occurred to me this season.—Chas. G. Barrett, Norwich, *September 14th,* 1870.

Melissoblaptes cephalonica in London.—During the past fortnight, I have captured several specimens of *M. cephalonica* in the City. My proceedings created much astonishment to the crowd which invariably attended me upon the occasion of my captures. This species has a peculiar appearance when at rest, looking somewhat like a short piece of straw squared off at either end. *Ephestia ficella, elutella,* and *interpunctella* have been unusually common this year.—H. Pryer, Highgate, 16*th September,* 1870.

Occurrence of Nonagria elymi at South Shields.—On the 12th of July, I succeeded in capturing a few specimens of this insect among the sand grass on our coast.—C. Eales, Maxwell Street, South Shields, *August 28th,* 1870.

Cloantha solidaginis at Halifax.—I have the pleasure of being able to add this species to our local list, having taken it rather freely during the last few days, at rest on the moors in this neighbourhood.— D. Baxendale, Akroydon, Halifax, *August 20th*, 1870.

Suspected occurrence of Notodonta trilophus near Exeter.—On August 25th, I was beating some alder bushes of fifteen or twenty years growth for larvæ, when amongst several common things the larva of a *Notodonta* fell into my umbrella. At first I took it for *dromedarius*, but, after looking at it again when I got home, I fancied it *zic-zac*, but could not quite make it out; and, as it was but small, I put it in a tin box, and fed it for a day or two to see what it would prove to be. Unfortunately, however, before long it got itself into such a position, that in opening the box I injured one of its legs, and it bled to death. It would have been well for my peace of mind, could I have forgotten all about it; but its figure would stick in my memory, and at last I was forced to the conclusion that it must have been *trilophus;* the colour was a light tint of reddish-brown, and on one side there was a patch of light green near the tail, but the point most to be observed was the row of *three dorsal humps.*

Since the discovery of my misfortune, I have thrashed every alder I can get at, and have taken many larvæ that at other times I should have prized; bugs also of vast size and pungent odour have fallen in abundance, but not another *trilophus.*

Boisduval says the larva feeds in June and again in September, and that it should be looked for on the aspen. I hope others will take the hint, and be more lucky than I have been.—J. Hellins, Exeter, 16*th September*, 1870.

Notes on the Lepidoptera of Braemar.—I spent from August 1st to 8th at Braemar, chiefly for the purpose of collecting the alpine plants for which the district is noted, but at the same time keeping a sharp look out for *Macro-Lepidoptera.*

In the following list, I have mentioned all the species I met with, as Braemar is, so far as I am aware, a new district to the Lepidopterist, though, from what I saw of it, I should consider it one that would richly repay a summer's collecting. I may mention that I did not collect after 10 p.m. (the nights being chiefly very light); so I cannot say what results sugaring might give, though, to all appearance, it would be very productive.

The village of Castletown of Braemar, where my lodgings were, lies in a hollow near the Dee, at the height of 1100 feet above the sea level, and is surrounded on all sides by high hills and extensive moors and woods. The undergrowth is chiefly birch and juniper, with a sprinkling of other trees, and there is great variety in the surface of the country,—from sheltered and marshy hollows to steep rugged crags and bare hill-sides.

Of *Diurni*, 10 species occurred—*Pieris brassicæ, P. rapæ, P. napi, Erebia Medea*, very abundant in one place, over 1000 feet above the sea level, near the Dee, but nowhere else; *Cœnonympha Davus*, generally distributed, but nowhere abundant; *C. Pamphilus*, not common, and very dark; *Vanessa cardui*, once seen; *V. urticæ*, abundant; *Argynnis Aglaia* was to be seen on almost every moor and by every roadside, but not numerous; *Lycæna Alexis*, abundant; *L. Artaxerxes*, one rubbed specimen: this insect occurs at various places all along the valley of the Dee, and is abundant on the coast south from Aberdeen.

On the heather, I found one larva of *Orgyia antiqua*, and several larvæ of *Bombyx rubi* and *B. callunæ*.

Of *Geometræ*, I caught 21 species; *Crocallis elinguaria*, four or five at rest on heather, on a moor near the village; *Fidonia pinetaria*, several, on the same moor, but rubbed (Aberdeenshire will thus have to be added to the previously recorded localities for these two species); *Larentia didymata* and *L. cæsiata*, both in countless swarms; *L. pectinitaria*, not common; *Eupithecia sobrinata*, very abundant among juniper; *Thera variata*, not uncommon; *Hypsipetes elutata*, rare, and in bad state; *Melanthia rubiginata*, abundant in the evening, about alder trees; *Melanippe fluctuata* and *Coremia munitata*, rare.

The genus *Cidaria* was represented by 7 species—*C. miata*, once, apparently newly emerged; *C. russata*, all the varieties abundant; *C. prunata* and *C. testata*, abundant; *C. populata*, abundant, and very variable; *C. fulvata* and *C. pyraliata*, both scarce; *Eubolia mensuaria*, not uncommon; *E. palumbaria*, very common on all the moors; *Carsia imbutata*, very local, but not very scarce.

Of *Noctuæ* I only caught 6 species, owing to my not collecting at night; *Chareas graminis*, abundant; *Tæniocampa gothica*, one larva; *Hadena pisi*, one larva on a species of *Juncus* (I never happened to find the larvæ of this species on *Pteris*, though I have frequently found them on Scabious, *Menyanthes*, &c., and, in confinement, I find they will eat hawthorn readily); *Plusia gamma*, once; *P. interrogationis*, abundant on all the moors, but very difficult to net, owing to its rapid flight; *Stilbia anomala*, once (this species is common in various localities on Dee-side).

Though too late for *Psodos trepidaria*, I have been informed that it is very abundant in the glens about Braemar, in July; and I have seen a specimen of *Geometra papilionaria* caught in that neighbourhood.—James Traill, Old Aberdeen, *August*, 1870.

[In "The Natural History of Dee Side and Braemar," by the late Dr. W. Macgillivray, printed for private circulation in 1855, under royal auspices, and edited by Dr. Edwin Lankester, is contained,—together with an extensive list of *Coleoptera* drawn up by Mr. Andrew Murray, but which contains many scotch species not properly to be attributed to the district in question,—a confessedly imperfect list of species of the other orders of insects then observed in that district, principally extracted from Dr. Macgillivary's M.S.S. The *Lepidoptera* are therein represented by fifty-four species, including thirteen of the forty-two above mentioned. So much care has been taken in other respects in "getting up" this posthumous *edition de luxe* (the names of Lyell, Hooker, Balfour, Babington, Ward, Jardine, Yarrell, Forbes, Nicol and Keith Johnston, testifying to its exhaustiveness and accuracy in the several branches of Natural History, for which these gentlemen are authorities), that it is to be regretted that the Entomological portion is so imperfect.

Mr. B. Jazdowski (The Entomologists' Weekly Intelligencer, Vol. 2, 1857, p. 171) has recorded *Erebia Medea* (*Blandina*), *Cœnonympha Davus* and *Argynnis Aglaia* from Braemar.—Eds.]

Description of the transformations of Argynnis Selene.—At length—after repeated failures—I have succeeded in rearing this species from the egg to the pupa, and am able to offer some account of its transformations. And I feel more pleasure in doing so from the fact that, although I have never been able to speak out decidedly till now, I have long felt that there is some confusion in the accounts already published; and I am sure that unless this species is very variable, the descriptions after Duponchel and Hübner, which do duty in our books, are defective and inaccurate.

On the 8th of June, 1870, whilst on a visit to Mr. F. Merrifield, I was taken by him to a locality near Brighton, where the butterflies were on the wing; and I was fortunate enough to secure a pair *in cop.* These I took home with me, and placed the same evening on a plant of *Viola canina,* and next day I noticed several eggs deposited in various sites,—on the upper and under surfaces of the leaves, as well as on the stems of the plant. The larvæ hatched in about eleven or twelve days, that is about June 20th, and were all out on the 22nd, and, after breakfasting on their egg-shells, fed away at once on the violet; for a time they kept abreast, all feeding well; and with a view of trying to procure by artificial means a rapid development, and so to avoid the dangers of hybernation, I had a portion of them placed in a hot-house.

However, I did not confine my attention to this portion alone, but attended to all the larvæ carefully, and by the 18th July, was rewarded by finding one of those not in the hot-house plainly giving tokens that he was bent on outstripping his fellows; by the 24th, he had gained a length of half-an inch (all the rest, whether in hot-house or not, remaining—as I had found so many broods in former years remain—at the length of about three-eighths of an inch, and, apparently, meaning to hybernate); and by the 30th, it had attained its full length of nearly an inch. On August 6th, it fixed itself on a bramble stick, and on the evening of the 7th, became a pupa.

The egg is of a dumpy blunt sugar-loaf shape, with a thin soft glistening shell, which is ribbed with about eighteen ribs, and transversely reticulate, but not very boldly; its colour at first is a subdued pale yellow; next becoming more drab; afterwards the lower part of the egg becomes dirty whitish, and the upper part purplish-black, no doubt from the head of the larva showing through.

The newly-hatched larva is a little pale olive creature, with shining black head; the pale brownish tubercles distinct, and bearing each a pale, longish, jointed bristle. By the time it is about two lines in length, the skin looks translucent, the colour is more greenish, the tubercles are larger—bearing the long bristles or hairs as before, and there now appear four pairs of opaque brown spots placed on the sides of the fifth, seventh, ninth, and eleventh segments. By the time the length of a quarter of an inch is obtained, there is another change, and then the fine bristles give way to black hairy spines; the colour is smoky-olive on the back, with a paler stripe of almost a dull yellow along the side, and a pale spot below each sub-dorsal spine, followed again below by a stripe of the darker colour of the back. On attaining three-eighths of an inch in length, its appearance is again changed, it then has a broad dorsal stripe of pinkish-grey, a sub-dorsal stripe of blackish-brown, and below it, on the sixth, eighth, tenth and twelfth segments, are blotches of orange-ochreous; below these, on all the segments, there are similar blotches, forming a somewhat interrupted broad stripe.

The larvæ, which are hybernating at this stage, have turned gradually to almost a dull pale orange colour throughout, the head and spines (all of the same length) remaining shining black.

After the next moult there is again seen the previous arrangement of colours, but rather brighter, the spines and head still black as before—the larva being about five-eighths of an inch in length.

After another moult, it assumes the final dress; it is then three-quarters of an inch long—increasing afterwards to about an inch—tolerably uniform in bulk, but, when looked at from above, widest about the fifth and sixth segments, and tapering thence very slightly to the tail: the segmental divisions well defined; the head rather notched on the crown; of the six rows of spines, the upper—or sub-dorsal—rows are rather stouter than the others, and the front pair of this row—which are the only spines on the second segment—are now rather more than twice as long as the rest, and, after tapering for some distance, become thicker again at their tips, and, standing forward a little apart from each other over the head, remind one much of a pair of snails' horns; on the third and fourth segments, there are but four rows of spines, and those finer than the rest; as a whole, the spines may be described as conical, thick, fleshy, shining, and semi-translucent, ochreous in colour, tinged with pink, and beset with fine pointed black bristles; those spines on the second, third, and fourth segments being exceptionally tipped with black, while the two lateral pairs are whitish at the base.

The ground colour of the full-grown larva is a velvety smoky-pink; there is a dark brown dorsal line, which throughout its course expands and contracts twice on each segment: in front of each sub-dorsal spine and partially enclosing it, is a velvetty black spot delicately edged with whitish, while behind each spine is a blackish interrupted streak; immediately beneath the whole row runs a much interrupted dark brown line; broad black spots are placed also in front of the spines in the lateral row: the spiracles are black, set in ovals of a pinkish tint, rather paler than the ground colour; and below them, bearing on it the sub-spiracular row of spines, runs an inflated stripe of pinkish-red paler than the ground, showing faintly and interruptedly on segments three and four, but distinctly throughout the remainder. The belly is of a deep pinkish ground colour, freckled with dark brown on the sides; prolegs pale pink, tipped with blackish-brown; the anterior legs black and shining.

Most of the lines and streaks are more or less broken by a sort of warty or granulated texture of the skin in places, each little wart being of the ground colour, emitting a minute soft hair, so that the body has a delicate and scattered pubescence.

The pupa is suspended head downwards; it is about half-an-inch in length, thick and obtuse in front, the abdomen thickest in the middle, thinner near the thorax; on each side of this part the edges of the wing-cases project, thus forming a cavity; the tip of the abdomen, viewed in profile, is blunt and rather abruptly curved back to its point of attachment; the eye- and antennæ-cases well developed, but all angles rounded off; the sub-dorsal rows of spines of the larva are still represented by two rows of blunt spikelets—not very projecting—along the back of the abdomen. In colour, it is brownish-ochreous on the wing covers, brown on the abdomen and thorax, and darker brown round the concave part of the abdomen;

on the beginning of the keel of the thorax is a black V mark pointing towards the head, with a silvery metallic spot on either side, and one on each side of the head; other metallic spots are at the base of the four pairs of spikelets next the thorax, the first pair the largest; towards the tip of the abdomen three pairs of the spikelets have a dark brown curved streak from each, uniting in front, and pointing forwards. The spiracles are plainly visible and black; behind them is a stripe of pale brown. The wing-cases have at their terminal borders two large blotches of black, another towards the middle, one at the base of the wing, and one on each of the eyes; the ground colour most delicately reticulated with blackish-brown.

Unlike its congener *Euphrosyne*, the larva of *Selene* has an aversion to the sun's rays, and does not at any stage of its larval existence care to expose itself to their direct influence, but reposes either on the under-sides of the leaves of the food-plant, or else on the stems while shaded more or less by the leaves, and feeds while young, and indeed nearly up to its last moult, on the youngest and tenderest leaves of the violet, but thenceforward has a more accommodating appetite, and attacks, without much choice, any of the mature leaves, eating out large portions of them at a time, and in a few days making considerable ravages on the plant.—Wm. Buckler, Emsworth, *August* 13*th*, 1870.

Male Orgyia antiqua attracted by female O. gonostigma.—Some years ago, having reared a number of females of a second brood of *O. gonostigma*, I placed them, in a cylinder cage, on a garden wall. Shortly afterwards, my attention was called to numerous male *O. antiqua* fluttering about the cage, vainly endeavouring to effect an entrance. For some, to me now, inexplicable reason, or rather want of reason, I contented myself with observing the phenomenon, without allowing the gay little flutterers the opportunity of a *tête-à-tête* with the fair inmates. I mention this occurrence partly because it has not before been recorded, and partly because some lover of hybrids may desire to rear the product of an unnatural selection.—H. G. Knaggs, Kentish Town, *September*, 1870.

Variety in the egg of Cerura vinula.—The well-known chocolate coloured egg of *C. vinula* is common enough; but, at the latter end of June, I found an egg of similar shape, only opaque white; it was on a leaf of *Salix fragilis*. It produced a "puss" genuine enough in appearance, though it unfortunately died in early kittenhood. — R. C. R. Jordan, 35, Harborne Road, Edgbaston, Birmingham, *September*, 1870.

Larvæ of Gonoptera libatrix.—Larvæ of *G. libatrix* were very abundant on a willow in my garden this year. They were allowed to spin in a glass globe—all the larvæ, about a day after spinning, changed in colour, a large jet black spot appearing on the second and also on the third segments. This spot grew, and was thought by me to be disease; such, however, was not the case, as all turned into healthy and lively pupæ, and produced perfect moths. It is therefore clearly a natural shade in the metamorphosis, but, at all events to myself, quite a novelty. —Id.

Presentation of the late Mr. Allis's collection.—It may be interesting to your readers to know that the grand collection formed by the late Mr. T. H. Allis has been presented by his father to the Yorkshire Philosophical Society's Museum here. —T. J. Carrington, 31, Holgate Road, York, *August* 18*th*, 1870.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA.*

BY JOHN SCOTT.

(*Continued from page* 76).

REVISION OF THE FAMILY *CIXIIDÆ.*

We have no nearer relatives of the *Delphacidæ* in England than the *Cixiidæ;* (nor are there any, as far as I am aware, on the Continent), and even their relationship is not of the closest kind, the shape of the face with its keels being the strongest outward and visible sign of it.

As in the *Delphacidæ*, so in the *Cixiidæ*, many of the species are exceedingly like to each other, and this has led to great confusion. Authors have not known what to do with them, and so they have been separated by one, put together by another, and finally mixed up almost indiscriminately. But here again the processes attached to the genital segment of the males serve as a simple but great guide. They are not shaped as in the *Delphacidæ*, neither are they placed as in that family, but are situated on the sides and project beyond the end of the segment, and support the tube; and, for general purposes, I have denominated them "claspers." Attached to the diagnoses of the species will be found a drawing of some two or three of them, showing the differences of structure, and which, I hope, will be considered useful.

Of the nine species enumerated by Curtis, in his British Entomology (673), five only remain, when the varieties have been disposed of; and of the four described by the Rev. T. A. Marshall, in the Ent. Mo. Mag., Vol. i, pp. 154 and 155, *musivus*, Germ., must be sunk, as the insects in Mr. Douglas' collection, and from which the description was made, are *stigmaticus*, Lat. *C. musivus*, has not as yet, I believe, been found in this country. But Mr. Marshall gives *cunicularius*, L., and *stigmaticus*, Lat., as varieties (*a* and *d*) of *nervosus*, L.; and, as these are good species, his number is increased by one, and so reaches that of Curtis. By the time this paper shall have been completed, I shall have described 10 species, divisible into two genera, *Oliarus* and *Cixius*.

Family CIXIIDÆ.

Cixiidæ, Stål, Hem. Afr. iv, 129.

Dictyophoridæ, Kirschb., Cicad. 11.

Head not produced in front. *Antennæ* short, inserted at some distance below the eyes, 1st joint concealed, 2nd short, sub-globose. *Eyes* faintly sinuate beneath. *Ocelli* 3 or 2. *Elytra* membranous, nerves generally granulated. *Tibiæ*, 3rd pair with two or three spines, and *without* a moveable spur. *Abdomen*, 1st and 2nd segments sealed together.

Crown, posterior margin angulate emarginate.
Ocelli 3.
Scutellum with five longitudinal keels.
Genus 1.—*OLIARUS*, Stål.

Crown, posterior margin concave.
Ocelli 2.
Scutellum with three longitudinal keels.
Genus 2.—*CIXIUS*, Lat.

Genus 1.—OLIARUS, Stål.

Head: crown frequently longer than broad, widest at the base, deeply concave, and with a more or less distinct middle keel, frequently not reaching to the convex anterior margin; *forehead* small, composed of two triangular pieces separated by a middle keel. *Face* dilated, with three longitudinal keels, lateral margins rounded. *Clypeus* large, separated from the face by an angular suture, and with a distinct middle keel. *Ocelli* 3, placed as follows, viz.:—two close to the margin of the face near the lower margin of the eyes, and one at the apex of the middle keel of the face.

Thorax: pronotum very small; posterior margin deeply angulate in the middle and rounded off towards the posterior angles; central keel very short, side keels semi-circular, generally just beyond the posterior margin of the eyes, and running parallel with them. *Scutellum* with five longitudinal keels.

Elytra without bands or spots.

A.—Crown longer than broad	1. *pallidus*.
B.—Crown transverse	2. *leporinus*.

A.—Crown longer than broad.

Species 1.—OLIARUS PALLIDUS.

Flata pallida, H. Schf., D. I., 154, 4.
Pentastiridius pallens, Kirschb., Cicad., 45, 9 (1868).

Elytra transparent, pale yellowish, nerves pale brownish-yellow, minutely, but somewhat indistinctly, granulated.

Head black; *crown* longer than broad, marginal keels brownish-yellow, middle keel black, rather indistinct, not reaching to the anterior margin. *Face* and *clypeus* keels brownish-yellow. *Antennæ*, 2nd joint brown.

Thorax: pronotum black, keels and posterior margin yellow or yellowish-white. *Scutellum* black, side margins and apex narrowly brown; keels black, or sometimes piceous, the 2nd and 4th keels slightly diverge for about two-thirds their length from the base, where they then contract towards the apex. *Elytra* transparent, very pale yellowish, nerves minutely but somewhat indistinctly granulated, pale brownish-yellow as far as the transverse nerves, from thence to the apex brown; marginal nerve not granulated, but round the apex, on the inside, narrowly margined with brown; the cuneate patch adjoining the anterior margin more or less brown interiorly. *Wings* clear and transparent, nerves brown. *Legs* fuscous, or brownish-yellow; *thighs* dark brown; *tibiæ*, 1st and 2nd pairs fuscous, 3rd yellowish, with a fuscous streak along the inside; *tarsi*, 3rd joint of the 1st and 2nd pairs piceous, 3rd pair, at the apex, brown.

Abdomen black, margins of the segments narrowly yellow.

Length, 2½—3 lines.

Easily separated from the next species by its narrower head and yellower elytra. I have not seen any recently-captured examples of this species, and I am indebted to Mr. J. C. Dale for the loan of his specimens, and the following communication with respect to their capture:—"The first was taken by sweeping grass on the downs by "Marley Wood, Lulworth, afterwards on the heath by the Aylestone "in Purbeck, and since near Ryde, Isle of Wight."

Curtis, who supposed it to be the *leporinus*, Lin. (B. E., 673, 9), says—"in abundance on coarse grass by the side of the Avon, Clifton." Time of appearance, June and July.

B.—Crown transverse.

Species 2.—OLIARUS LEPORINUS.

Cicada leporina, L., F. S., 895 (1761); S. N., ii, 711, 43 (1767); Schrank, Enum. Ins. Aust., 501, 260 (1781); Panz., F. G., 61, 19 (1799).

? *Flata pallens*, Germ., Mag., iv, 101, 2 (1821).

Flata leporina, Germ., Thon Archiv., ii, 50, 50 (1830); H. Schf., 144, 4.

Pentastira leporina, Kirschb., Cicad., 44, 2 (1868).

Elytra pale, transparent, nerves brown, granulation minute, but distinct, black.

Head black; *crown* transverse, marginal keels yellow. *Face* and *clypeus* keels yellow, middle keel of the former furcate immediately below the margin of the forehead, with which it forms a small triangle. *Antennæ* yellow.

Thorax: *pronotum* black, keels and posterior margin whitish or yellowish-white. *Scutellum* black. *Elytra* pale, transparent, nerves brown as far as the transverse nerves, from thence to the apex dark fuscous; granulation black, minute, but distinct, the granules disposed at somewhat regular intervals; anterior marginal nerve not granulated, the cuneate patch brown. *Legs* yellow; *thighs* fuscous, apex narrowly yellow; *tibiæ* sometimes pale fuscous at the base; *tarsi*, 3rd joint brown.

Abdomen black, sides and margins of the segments narrowly yellow.

Length, 2¼—2½ lines.

Two old specimens are in the collection of Mr. J. C. Dale; another example was taken at Deal by Mr. E. Saunders at the end of June, on *Tamarix*.

Genus 2.—Cixius, Lat.

Head: crown widest behind, deeply concave, with a depressed middle keel; posterior margin concave, anterior margin convex; *forehead* very small, almost in the same plane with the crown, generally composed of two triangular pieces, separated by a middle keel. *Face* much dilated, with three longitudinal keels. *Clypeus* large, separated from the face by an angular suture, and with a distinct middle keel. *Ocelli* 2, placed close to the margin of the face, between the eyes and antennæ.

Thorax: pronotum as in *Oliarus*. *Scutellum* with three longitudinal keels.

Nerves of the elytra distinctly granulated with black; the granules along the anterior margin always largest.

A.

Elytra pale, transparent; the base, a narrow band before the middle, frequently much interrupted, or sometimes nearly obliterated, and another broader one before the apex, brown...1. *cunicularius*, Fab.

1.—*Marginal nerve* with two or three of the granules at irregular intervals, generally united.

B.

Elytra without a band before the apex, the first nerve at the base, as far as the bifurcation, brown or black, transverse nerves black, the space between them and the apex with several more or less distinct pale fuscous, or brownish patches ....2. *nervosus*, Lin.

Head and *face* yellow, or pale brownish-yellow; *pronotum* pale chestnut-brown, darker on the sides. *Elytra:* marginal spots somewhat square. *Genital organs* pale brownish or yellowish...
3. *intermedius*, Fieb.

Elytra: marginal granules *not* square or elongate...4. *brachycranus*, Fieb.

Head black, keels broadly pale brownish-yellow. *Face* brownish-yellow. *Elytra* almost invariably with three short black streaks along the anterior margin, and a short transverse fuscous streak midway between the cuneate patch and the apex ...
5. *contaminatus*, Lat.

2.—*Marginal nerve* without united granules.

C.

Elytra without bands.

Elytra dark grey or brownish-grey, with several irregularly disposed, and more or less confluent, darker spots .....6. *stigmaticus*, Germ.

Elytra pale, marginal granules elongate, somewhat thickly placed, apex between the nerves with pale fuscous spots. *Clavus:* marginal nerve, next the apex, black ....7. *simplex*, H. Schf.

Elytra somewhat whitish, marginal granules elongate, and placed at wide intervals, *all the nerves white*, apex without spots between the nerves ....8. *similis*, Kirschb.

A.

Species 1.—CIXIUS CUNICULARIUS.

Flata cunicularia, Fab., Sys. Rhyn., 55, 48 (1803); Germ. Mag., iii, 195, 6 (1818); Thon Archiv., ii, 48, 27 (1829).
Cercopis Dionysii, Panz., F. G., 34, 24.
Cixia cunicularia, Burm., Handb., ii, 157, 3 (1835).
Cixius Dionysii, Curt., B. E., 673 (1837).
Cixius nervosus, Flor, Rhyn. Liv., ii, 22, 1 (1861); Marshall, Ent. Mo. Mag., i, 154, 1, var. a (1864).
? *Cixius dorsalis*, Hardy, Tyneside Nat. F. C., i, 430 (1850).

Elytra pale, transparent, sometimes of a milky hue, the base, a narrow band before the middle, frequently much interrupted or sometimes nearly obliterated, and another broader one before the apex, brown.

Head yellow; *crown* with a black, almost square, spot on each side of the middle keel. *Face* more or less pitchy-brown, darkest along the lower margin, keels yellow or whitish-yellow. *Clypeus* brownish, middle keel yellow, side keels pitchy-brown (in the ♀, the entire clypeus and keels are generally yellow). *Antennæ* yellow.

Thorax: pronotum yellow, more or less brown between the keels. *Scutellum* pitchy-black, or deep chestnut-brown, apex transversely wrinkled, middle keel paler than the disc, not reaching the apex distinctly, but appearing to terminate in a line with the apex of the side keels. *Elytra:* nerves pale yellowish, granules black, of slightly irregular size, and placed at irregular intervals, frequently in pairs diagonally towards the apex, each granule bearing a short black hair; junction of the nerves with the marginal nerve round the apex black, the spot generally of a triangular shape; the band before the middle is sometimes entirely obliterated or composed of one or two patches, or its position is alone indicated by a small patch next the anterior margin; the inner margin of the band before the apex always commences on the anterior margin in a line with the base of the cuneate patch, and curves inwards to the first transverse nerve from whence it passes almost straight across to the apex of the clavus. *Wings* pale, or somewhat fuscous, or frequently the inner portion towards and at the apex dark fuscous; nerves fuscous. *Legs* more or less fuscous-yellow.

Abdomen **black, outer lower angles of the segments generally orange-reddish or yellowish : *genital segment* black, " claspers," &c., yellowish, or pale brownish-yellow.　　Length, 2¾—3½ lines.**

The band across the apex of the elytra is quite sufficient to show the difference between this species and ***nervosus***, with which it has been confounded. Sometimes the entire elytra are of a dark brown or reddish-brown colour with the exception of a pale space before the base of the cuneate patch. This is the form *C. Dionysii*, Curt. In Mr. Bold's collection, there is a singularly small ♂ (only about two lines long) with the apex of the elytra almost entirely dark fuscous.

Less common than *C.* ***nervosus***, with which species it is frequently taken by beating trees and bushes in woods, &c., in June and July. I have seen specimens from Dr. White of Perth, Mr. Hardy of Old cambus, Mr. Bold of Newcastle-on-Tyne, Mr. J. C. Dale of Glanville's Wootton, and those taken by Mr. Douglas and myself here.

(*To be continued*).

DESCRIPTION OF THE LARVA OF *DEILEPHILA GALII*, WITH NOTES ON ITS VARIATION.

BY WILLIAM BUCKLER.

Up to the present autumn it had been my chance to have seen but one larva of *D. galii*, and that a dead one, as long ago as 1859. This corpse I figured, but, as may well be supposed, I could never feel satisfied that my figure was at all trustworthy.

The satisfaction, therefore, and the feverish delight which have been wrought in me lately by the gift of four, and the loan of not less than twelve, larvæ in various stages of growth, may be better conceived than described!

To Mr. Nicholas Cooke and Mr. Henry Terry my warmest thanks are due for this great kindness, of which I have availed myself so far as to take fifteen figures, and to put together the following observations, which may, perchance, be deemed not altogether uninteresting.

The larvæ arrived at intervals from the 6th to the 26th of September, 1870, and fed freely on flowers, unripe seeds and leaves of *Galium* ***verum***, and occasionally ate a little *Fuchsia;* when full-fed they were restless, and wandered about for a day or two before they settled down to spin. They made for their covering a rather coarse network of threads, which bound the sand beneath them with the *Galium* above into a slight cocoon; and they had all retired by the 8th of October.

In form, these larvæ reminded me of some of the *Chærocampæ;* for, although the thoracic segments are but slightly retractile, yet they are tapered off rapidly to the head, which is rounded, and smaller than the second segment; the rest of the body is tolerably cylindrical, just a little thickest in the middle segments, and rather less bulky behind, the anal prolegs being broad and squarely developed: the caudal horn is curved backwards, its point arching over the anal flap, and it is rough, with minute bristly points. Each segment of the body, excepting the thoracic and posterior, has a very broad sub-division in front on the back, followed by six narrow ones, though while the larva is very young the two hinder folds are united into a broader one, the last wrinkle being smoothed out; these wrinkles or folds extend as low as the spiracles; just in the spiracular region there is a longitudinal somewhat puckered inflation, but marked only by dimples when the creature is in repose; a few very short bristly hairs fringe the prolegs.

With regard to colour, I propose to describe the changes that occurred in the smallest of six young larvæ up to its adult state, before speaking of varieties. This larva, then, on its arrival, was about three-quarters of an inch in length, of a rather bright full opaque green, the belly and legs a little paler than the back and sides; with dorsal, sub-dorsal, and sub-spiracular stripes of pale ochreous-yellow: upon the sub-dorsal stripe on the front of each segment appeared an indication of an oval spot of a little deeper yellow, with the faintest possible outline above of black; the horn at this time but slightly curved, semi-transparent, and of a reddish tint tipped with crimson; the hinder wrinkled portions of the segments dimly showing some whitish-green freckles. On moulting it changed into a deeper, brighter and purer opaque green dress, in which the previous design was further developed. The green on the back was now deeper than that of the side, and the belly and legs a little paler still; on the sub-dorsal stripe at the beginning of each segment the oval spots were enlarged, and tinged with bright orange, edged above and below with black; the end of the stripe towards the horn bore something of an elongate pear-shaped spot; a freckling of pale yellow specks distinctly appeared on the hinder portions of each segment as well as on the sides; the spiracles white, outlined with black; the head pale bluish-green, marked with black near the mouth; a pale bluish-green plate on the second segment; hinder extremities pale green, slightly tinged with pink; the horn pinkish-ochreous, tipped with deep crimson.

When a length of an inch and a quarter, or thereabouts, is attained, the final moult takes place, and a great change is at once apparent; the *stripes* have totally disappeared, and the head, the plate on second segment, with the anal flap and prolegs, show purplish-red. In the individual whose changes I have been tracing the ground-colour at first was opaque black, relieved only by the pale yellow sub-dorsal spots, a few small freckles, and the spiracles; but investigation with a lens disclosed an infinity of little puckers and wrinkles, reminding one of the texture of crape; by degrees these wrinkles were smoothed out as the creature grew, and the final dress was assumed.

I shall now describe this same larva when mature, and then give notes of the chief varieties, which came under my notice.

Length, when stretched out, 2⅞ inches. The back and sides of a deep bronzy olive-green, but below the spiracles, and on the ventral surface, the colour is a smoky deep purplish-pink; although the boundary is clearly defined, yet a gleam of the one colour tinges almost imperceptibly the other, both above and below.

There is no sub-dorsal line, but in its place a row of fourteen somewhat roundish spots, four of them on the thoracic segments small, the others large, the hinder one somewhat pear-shaped, pale golden-yellow in colour, and set in transverse ovals of deep black, which melt into the ground colour; the spiracles yellow, outlined with black, and surrounded by a cloud of darker olive than the ground colour; a few small yellow specks are sprinkled along the sides; one can well make out a dorsal thin stripe of deep ochreous-olive, wide at the beginning of each segment, looking as though it were showing dimly through the surface from a depth below. The head is purplish-pink, the mouth black, with a streak of pale yellow above it, and yellow bases to the papillæ, and just above them is a narrow circumferent band of black; the plate on the second segment, the anal flap, and the prolegs are dark pinkish-red; the anterior legs black, the ventral prolegs purplish-pink, with an outward bar of black near their extremities; the horn is semi-translucent, and blood-red: the whole surface of the skin, excepting on the thoracic segments, is now brilliantly polished, and resplendent with the play of light at every movement.

Taking the above as my type, I could make two grand varieties as to ground colour—the pale olive and the black; and each of these—as well also as my dark olive type—furnished a further sub-division through variation in points of detail.

Var. 1. Neither a light nor a dark olive-green, but between them, with the large yellow spots developed into pear shapes, the small end of each projecting forwards as a spot on the segment in advance.

Var. 2. Dark reddish-brown, with just a tinge of olive, and with the addition to the usual obscure dim dorsal line of a bright pale ochreous mark at the beginning of each segment, terminating at the end of the broad first sub-division, which appears like a black band; the bright yellow sub-dorsal spots as before.

Var. 3. The ground colour of the back and sides a pale brownish ochreous-olive; the sub-dorsal pale primrose-yellow spots and the spiracles environed with black; the belly and prolegs rose-pink.

Var. 4. A deep jet black on the anterior segments, bluish-black on the others; the head, thoracic plate, and anal extremities of very dark purplish-red; the sub-dorsal spots of a dirty and dingy yellowish-drab tint, with their centres more or less filled up with blackish-brown, in one or two instances wholly obliterated.

Var. 5. Ground colour entirely bluish-black, the deepest tinge of purplish-red on the head, the plate behind it, and the anal extremities; blotches appear on the side of the anal flap, which, with the sub-dorsal spots, the spiracles, and an extensive irroration of small dots, are all of the purest pale golden-yellow, the black ground being left unbroken as a band across the back from one sub-dorsal spot to the other.

Concluding my own remarks, I may state that, in every instance, the skin after the last moult was black for a day or two, as previously mentioned; but at this time one may judge of the colour the larva will eventually assume, by the tint of the head, thoracic plate, and anal extremities; these parts, if then quite black, indicate that the ground colour will be black to the end of its career; but if they are of deep purplish-red, the larva will turn to a dark olive or brown; or should they be of a bluish-green, slightly tinged with pink, a pale olive larva will result.

So far, I have put down only what I have myself seen in the living larvæ, but I may state that amongst some figures most kindly lent me by Mr. Boswell Syme, there was one of a black variety, with the sub-dorsal spots of a dull crimson colour.

Mr. Boswell Syme has had altogether about two hundred larvæ, and says "head always red," whilst Stainton, in his notes made from living larvæ, says "head pale greenish," with the memorandum that Sepp's figure came nearest to his specimens.

The pupa I examined is 1⅝-inch long, including the short, curved horn or anal spike, and moderately stout; the head rounded and narrower than the thorax, the anal extremity a little tapered but otherwise tolerably uniform in bulk; the wing-cases lie close to the body, and extend as far as the eighth abdominal segment, the last five segments are rather deeply cut and flexible, the sides of the incisions smooth, all the other surface granulous.

Its ground colour is a deep red, and this is much suffused or sprinkled with black, especially on the wing, antennæ, and trunk cases, also on the back of the thorax; this last has, however, a dorsal line, and the pieces of the thorax are outlined with the ground colour; the antennæ and ends of the wing-cases are relieved by a fine marginal streak of flesh colour, and joining them; the smooth sides of the abdominal incisions are deep, and rather purplish-red; the spiracles blackish-brown.

Emsworth: *October* 12*th*, 1870.

ON THE BRITISH SPECIES OF *PLATYCHIRUS*.

BY G. H. VERRALL.

This genus was included under *Syrphus* by Walker in the "Insecta Britannica," but is now generally considered distinct, being separated by the following characters:—the epistoma and scutellum are æneous, without any yellow markings, though the epistoma is often dusted with yellow tomentum; the abdomen is linear, marked with three or four pairs of sub-quadrate spots; and, especially, the front tarsi of the males are always dilated, whence the genus derives its name; the species have also a strong family resemblance, which will at once separate them from their allies. Walker described six species, all of which, with the addition of *immarginatus*, I included in my list published last January, though I had not seen any specimens of *fulviventris*; I have since met with four others, so that we have now eleven British species. They are as follows:

1. *manicatus*, Linn.: distinguished by the considerably produced conical epistoma; by the male having the *two* basal joints of the front tarsi forming a large oval, whitish-yellow, flat disc, spotted with black beneath, the other joints brownish and moderate in size; and by the dull thorax of the female. It is common in meadows almost everywhere, and swarmed at Loch Rannoch last June.

2. *melanopsis*, Loew: this species is somewhat allied to the preceding, but is smaller, with the abdominal spots smaller and redder, especially the first pair; the epistoma is less conical, and the male has the *three* basal joints of the front tarsi forming an elongate oval, whitish disc; the female is said to have the abdomen much more ovate (even resembling *Syrphus corollæ)*, and the thorax is shining. I found one male among my Rannoch captures, but do

not recollect exactly where I took it; it was first described by Loew in 1856, who, in company with Schiner, found it near the tops of the Carinthian Alps.

3. *peltatus*, Meigen, is distinguished by its rather large size, blackish colour, moderately produced epistoma, luteous under-side of the third joint of the antennæ; the male by the coarse fringe of black hairs behind the front femora, luteous front tarsi with only the metatarsus enlarged, the other joints being abruptly narrower; the female by the whitish-yellow abdominal spots, all of which, except the first pair, lie on the fore-margins of the segments. It is common and widely distributed, and was rather abundant at Loch Rannoch, where I noticed it was very fond of sitting upon the leaves of shrubs in company with some *Syrphi*, which much resembled it.

4. *albimanus*, Fab., is smaller, and is distinguished by the peculiar colour of the abdominal spots; the male has the abdomen rather narrow, with three pairs of hoary æneous spots, the front tarsi luteous, altogether dilated, the second joint being about half the length of the first; the female is steel-blue, with three pairs of hoary, light blue spots on the abdomen. It seems to be very generally distributed, but never abundant.

5. *scutatus*, Meigen: this species is rather allied to the preceding, but the antennæ are luteous beneath and the abdominal spots yellow, and more quadrangular; the male also has the abdomen still more narrow, the front tibiæ with a tuft of black hairs on the outside and the luteous dilated front tarsi with the first joint about eight times as long as the second; in the female the abdominal spots are rather small, nearly twice as broad as long, and do not touch the fore-margins of the segments. It is as widely distributed as *albimanus*, but rather less common.

6. *clypeatus*, Meigen: this is the first of a series of closely allied species; it has the epistoma but very little produced, and with only a slight knob, the abdomen has three pairs of reddish-yellow, sub-quadrate spots, the first pair being rounded and rather small, the legs are luteous; in the male the anterior femora have a moderate pubescence of black hairs behind, the front pair have a blackish streak above, and the middle pair are blackish at the base, the front tibiæ are whitish at the tip, and, as well as the tarsi, moderately dilated; the female has the anterior femora almost all

luteous; in both sexes the hind femora and tibiæ have a broad, blackish ring, and the hind tarsi are blackish at the base and tip. It is very common in meadows.

7. *scambus*, Zetterstedt, is clearly allied to the last, but the male has a row of about six very long solitary black hairs behind the front femora, and a few rather long black hairs beneath the middle femora near the base, the anterior femora are almost all luteous, the hind legs are blacker, the abdominal spots, especially the first pair, are rather larger, and the epistoma has more yellow hairs. I captured it rather commonly at Rannoch last June.

8. *angustatus*, Zetterstedt: this is also very closely allied to *clypeatus*, but is smaller, the abdomen is much narrower, the abdominal spots are larger, the second pair being nearly twice as long as the third pair, while in *clypeatus* they are almost equal, the pubescence on the thorax is less abundant. I have a specimen of this captured near Lewes last June, and another at Darenth in May, 1868, which I had previously confounded with *clypeatus*.

9. *podagratus*, Zetterstedt: also closely allied to *clypeatus*, but the abdominal markings are more obscure, the size is smaller, the front tibiæ are much more dilated at the tip, the anterior femora are more blackish, and the hind legs are all shining black, except just the knees. I captured a few specimens of this at Ranuoch last June.

10. *immarginatus*, Zetterstedt: this and *fulviventris* are distinguished from the four preceding by the much greater extension of the pale markings of the abdomen, so that Walker quite correctly says "*abdomine fulvo, linea dorsali media fasciisque angustissimis nigris:*" *immarginatus* has the front femora with about six long solitary black hairs behind (like *scambus*), and also has the hind femora and tibiæ with with broad black rings, and is a small species; I once found it in tolerable abundance on the banks of the Thames, between Kew and Richmond, in August, 1868, but, mistaking it at the time for *clypeatus*, only took a few, and I have never been there at the right time since. I expect Walker's *ferrugineus* var. b includes this.

11. *fulviventris*, Macquart: Walker says of this species—"Rare, in the collection of Entomological Club;" there are two specimens there which I believe belong to this species, but I have never critically examined them; I have never met with the species, but see

no reason why it should not be common in many marshy districts, as I believe it prefers low ground and ditches; it is distinguished by the entirely luteous legs, and extended reddish-yellow abdominal markings, it is also larger than *immarginatus*, and the front femora have a moderate pubescence behind.

Any further addition to our species is hardly to be expected; *rostratus*, of Zetterstedt, might occur in Scotland, it has hitherto been found very rarely in Sweden and Lapland, it is allied to *manicatus*, but is more shining, and the tarsi are not spotted beneath; *latimanus*, of Wahlberg, also from Lapland, resembles *albimanus*, but has only the two basal joints of the front tarsi dilated, and the tibiæ not at all dilated at the tip; *ciliger* and *fasciculatus* of Loew come from the Austrian Alps, and both have the hind tibiæ bent, and with long black hairs on the outside, otherwise being allied to *manicatus; parmatus*, of Rondani, from Italy, is allied to *manicatus*, but has all the anterior tarsi yellowish-white; *spatulatus*, of Rondani, also from Italy, seems to come somewhere near *podagratus; quadratus*, of Macquart, is probably only *scutatus*, and his *dilatatus* may be only a small *peltatus;* I expect *podagratus* and *scambus* will be found to be widely distributed in Scotland, when that country has been more closely worked, and I think the genus thrives better in northern latitudes, as no European country possesses so many species as Sweden and Norway, and I never saw them so abundant in the south of England as I did at Loch Rannoch.

Denmark Hill: *October*, 1870.

DESCRIPTIONS OF THREE SPECIES OF *PHYCIDÆ* (FROM BRITAIN) NEW TO SCIENCE.

BY HOWARD VAUGHAN.

TRACHONITIS (?) PRYERELLA, *n. sp.*

♀. Alar expanse 10 to 11½ lines. Stout, thorax broad, abdomen robust, tapering towards the anal extremity. Fore-wings moderate in length, rather broad, costa slightly rounded towards the apex, inner margin nearly straight. Antennæ filiform, pale grey. Head grey. Thorax grey, with the meta-thorax and patagia tipped posteriorly with long dark grey scales. Abdomen pale greyish-white. Fore-wings ground colour, pale greyish-white, shaded towards the base with dark grey. First line, which is undulating and oblique, passing from the inner third of the costa to the middle of the inner margin, shaded with dark grey; this shading continuing in less degree to the second line.

The stigmata indicated by darker grey markings. Second line denticulate, nearly parallel with the hind margin. Sub-terminal line very wavy and faintly visible on the paler ground colour. Hind margin dotted with dark grey. Cilia pale grey.

Hind-wings silky-white, narrowly bordered with fuscous.

I am at present aware of the occurrence of three specimens only. One taken in London, by Mr. Henry Pryer, of Tooley Street, on the 27th August last, a second by myself on the 10th September last, and the other, captured some years ago by Mr. T. Eedles, and in the collection of Mr. Stainton.

I have named this species in honour of Mr. Pryer.

HOMŒOSOMA SENECIONIS, *n. sp.*

Alar expanse, 8 to 9 lines. In general appearance, this species resembles its congeners *nebulella* and *binævella.*

Head, thorax, and abdomen, greyish.

Fore-wings: ground colour shining greyish-white, the inner half being suffused with a warm, fuscous tint. There are no indications of a first line. About the junction of the middle with the inner third, and towards the middle of the wing are two, and in some cases three, dark dashes. At about the junction of the middle with the outer third are two distinct black dots. Beyond these dots is the second line, which affords a most distinctive character to the species; it is straight, and composed of black dots running in a direction oblique to the hind margin. The hind margin is more or less distinctly dotted. Cilia grey, with a faint fuscous tint.

Hind wings shining grey, cilia paler.

From *H. nebulella*, to which this species is nearly allied, it is at once distinguished by its much smaller size. From *H. binævella*, the straightly oblique dotted second line, independently of other characters, readily separates it.

The following careful description of the larva of this species has been kindly forwarded to me by Mr. Buckler:

"I received on June 19th, from Mr. Howard Vaughan, three larvæ "mining in stems of rag-wort *(Senecio jacobæa)*, and pushing out little "heaps of frass which are agglomerated together by webs.

"When full-grown, the larva is half-an-inch long, plump, tapering "towards the head, which is a little smaller than the second segment. "Segments well defined, and each (excepting the thoracic) sub-divided "by only one deep wrinkle. The spiracular region a little puffed.

"In colour it is of a deep purplish-brown, the ventral surface "slightly tinged with olive; the head and plate on second segment "deep blackish-brown and brilliantly polished, the rest of the body "rather shining, with a faint violet gloss. The others not quite so "mature, were of an olive-greyish tint, with shining black heads and "plates—a pinkish gloss being on the back and sides."

The perfect insect occurs in May and July, and the larvæ from which the above description was taken were captured by myself, in Essex, in June.

HOMŒOSOMA SAXICOLA, *n. sp.*

Alar expanse 7 to 8 lines. Head, thorax, and abdomen greyish fuscous. The ground colour of the fore-wings grey, with a fuscous tint. The costal stripe bifurcates about the inner third into two other stripes of unequal size, the larger of which is continued along the costa until within a short distance of the apex, and the lesser is continued as a streak to beyond the middle of the wing. There are two or three small black dots situated about the junction of the inner and middle third, and two or three other small dots beyond the middle of the wing. There is seldom any indication of a second line. Cilia of the ground colour. Hind-wings shining-grey, cilia paler.

This species is closely allied to *H. nimbella.*

From *H. senecionis* it is readily distinguished by its smaller size, narrow wings, by the bifurcating costal streak, by the smaller size of the dots, and by the darker ground colour of the fore-wing, and absence of the dotted second line.

The specimens from which the above description is taken were reared in 1867, from larvæ found feeding in flower heads of chamomile *(Anthemis)*, in the Isle of Man, in September, 1866.

The larva, as well as I remember, was short, obese and greenish, with darker blotches on the back.

Kentish Town: *October*, 1870.

ON THE HABITS OF *PLATYPUS CYLINDRUS*, FAB.

BY T. ALGERNON CHAPMAN, M.D.

(*Concluded from p.* 106.)

The newly-hatched larvæ are not the straight cylindrical creatures that the full-grown larvæ are, but rather flattened and disc-shaped, the lateral region being largely developed and each side carrying two rows of long stiff bristles, each bristle surmounting a lateral tubercule. As the larva consists of a head and twelve segments, each row consists of eleven bristle-bearing tubercles, the bristles of the anal segment being directed backwards. These bristles are probably of great assistance in locomotion. The young larva, adhering to the damp felty wall of the burrow by its moisture, moves freely along or round it by a wave-like motion, and feeds entirely on the fungus-exudation until it has grown large enough to occupy the whole diameter of the burrow.

The full-grown larva presents corneous points at the same situations as those occupied by the bristles of the young larva. With each change of skin they become shorter, till they are thus only represented in the last skin. I need not describe the full grown larva, which has been figured by both Ratzeburg and Perris, and well described by the latter in the Annales des Sciences Nat., série II, tome 14, p. 89. The only exception I would make to Perris' description is that he describes it as rather thickened beyond the middle, and he so figures it. The larva is really quite cylindrical, when at home in its burrows. Perris does not appear to have met with it plentifully, and to have made his descriptions from specimens removed from the burrows, without noting that soon after removal the larva becomes rather thicker beyond the middle segments, and, instead of continuing straight, becomes curved, and then much resembles that of the other *Xylophaga*. It is extremely muscular, and this change probably results from its contortions not being counteracted by their usual points of resistance, the walls of the galleries.

The larvæ must feed up very rapidly, as I find them full-grown when the burrows can hardly have been made more than a few weeks. I have found no evidence of eggs being laid after the late autumn; and during the winter the burrows contain full-fed larvæ. The parent beetles also live in the burrows all the winter.

During the winter all the inhabitants are nearly dormant, but in autumn and spring much frass is ejected. At first, and before there are any larvæ in the burrow, this is all of the splintery variety; but afterwards it is composed of small pellets of digested wood, almost entirely the excreta of the larvæ. The young larvæ certainly live on the fungus-exudation I have described, until they grow large enough to fill the burrow. The large larvæ must eat considerably, both from the amount of fat they store up and their muscularity. There is also much frass ejected, and these considerations lead me to believe that the full-grown larvæ eat the wood, though I have no proof of it, and I know that they eat the fungus.

I think it is also evident that the various branches of the burrow are increased in length and complexity after the splintering process is finished. In the spring, also, the pupal cavities have to be excavated, and this must certainly be done by the larvæ themselves, both because the parents are frequently dead at this period, and because the amount of excavating during a brief period must be very great, more than the parent beetles could undertake. I believe that the parent beetles die usually in the following April or May, after the larvæ are full-fed, but before the pupal cavities are commenced.

The arrangement of the branches of the burrow is somewhat irregular, usually consisting of a few long straight galleries that are, roughly speaking, parallel to each other; sometimes a branch leaves another near its extremity and returns nearly parallel to it, but they never anastomose. Sometimes they consist of short curved portions continuously dividing dichotomously, making, though not all in the same plane, a curiously regular pattern, something like a branch of mistletoe. The much smaller burrows of *Tomicus dryographus*, the only species we have in this country at all allied in habit to *Platypus*, are divided with much more regularity than those of *Platypus*.

The principal function of the parent beetles after oviposition appears to be the ejection of frass from the open mouth of the gallery, which they alone appear to do. I have seen a small quantity brought every few minutes, at a season when the larvæ were busily feeding. It seems to be done by the male or female beetle indifferently.

I have strong reason to believe that either of these directs the movements of the larvæ in the burrows, not only from the burrows containing eggs and young larvæ being kept undisturbed, but also from larvæ falling out of the burrows from which the parent beetles had been removed, a circumstance that does not otherwise occur.

The pupation cavities or burrows are excavated on either side, or I should rather say on the floor and roof of a straight branch of the burrow, tolerably close together, so that the two sides of a burrow often contain several dozen within a few inches. They are always at right angles to the gallery from which they start, and also parallel to the fibres of the wood, of the same width as the ordinary galleries, and just the length of one beetle. The larvæ, after excavating them, must come out and enter backwards, as the head of the pupa is towards the burrow, and the larva is unable to turn round in it. It is shut off from the gallery by a slender partition of frass, which looks as if it had got there by being pushed out of the way by passers by; and it is difficult to see how it could be placed there in any other way, though, as it in reality completes the cocoon of the larva within, it is hard to believe that its presence is accidental.

I had usually found the pupation cavities placed vertically, *i. e.* one set above the burrow, the inhabitants of which must be head downwards, the other set below the burrow, the inhabitants of which must have the head upwards; and it occurred to me, in connection with certain theories as to the sexes of bees, to investigate whether the different position had any influence on the sex of their inhabitants. Accordingly, I provided myself for the purpose with a fine log occupied by *Platypus*, but found, somewhat to my disappointment, all the pupation cavities horizontal, that being the direction of the fibres of the wood in the log. The beetles were, I need hardly say, placed indifferently as regards the sexes. I tried to investigate the matter in a suitable stump, but was not successful in finding many beetles ready to emerge; the few I found, however, did not favour any theory in the matter, but I was enabled to determine that the line of the fibres of the wood and not the line of gravity determined the direction of the pupation cavities. This must be of use in preventing the cavities of contiguous burrows from interfering with each other.

When the beetle emerges, it soon leaves the burrow, and either forms a fresh burrow in the stump, or takes wing to a fresh locality. Those I had in captivity appeared to prefer the sunshine for their flight. It is only by taking them before they have left the burrows in which they were reared that they are to be captured in perfect condition.

The beetles are able to make a very audible squeak, by rubbing the abdomen rapidly against the elytra. When a log containing a number of burrows is shaken, the beetles burrowing within it answer with quite a chorus of squeaking, in order to hear which, the ear must be placed near the wood.

I have never met with *Colydium elongatum*, the parasite of *Platypus*. The only parasite I have seen is a small white *Acarus*, a full-grown individual of which, until its legs are detected, extremely resembles in size, colour, and outline, the egg of *Platypus*, on which its eggs are laid, three or four sometimes adhering to the egg of the beetle. I believe it extracts nutriment from the larva of the beetle, though without doing it much injury.

Abergavenny, August, 1870.

Occurrence in Britain of Aleochara maculata (C. Brisout).—I have had for some years a specimen of an *Aleochara*, captured by myself in the shingle by the banks of the Lyn, in north Devon, which puzzled me very much. This was taken by Mr. Crotch to Paris last spring, and has been returned named by M. Ch. Brisout as the species described by him in Grenier's Cat. des Col. de France et Matériaux, &c., 25, p. 18, under the name *maculata*. It is there compared to *bisignata*, Er., a species I believe we have not as yet found in Britain; and is not unlike *cuniculorum*, Ktz., but is larger, with longer and stouter antennæ, shorter legs (the *middle* tarsi especially being shorter) and darker femora. It is, moreover, more sparsely clothed with a golden pubescence, and the abdomen is less closely punctured. In size and colour of the elytra, it is like a large example of *A. nitida*, from which, of course, the absence of the double series of thoracic punctures at once distinguishes it.—H. S. GORHAM, Bearsted, *October 13th*, 1870.

[M. Brisout's species above recorded as British has been erroneously attributed by German Coleopterists as a synonym to *A. cuniculorum*, Ktz. (*bisignata*, Wat. Cat., *nec* Er.); from which, as is evident from Mr. Gorham's observations, and as I have also been long ago assured by M. Fauvel, it is abundantly distinct.—E. C. R.]

Note on Homalota algæ, Hardy.—Mr. Crotch in 1866 proposed to retain Mr. Hardy's name for one of the two species of *Homalota* included by him under it. In this I fully concur: indeed, I think it must be adopted as a matter of right. Not only does he most accurately describe the dark insect, as noticed by Dr. Sharp, but his description, as will be seen below, was published a year previous to that of *H. puncticeps*, Thomson. That Hardy should have appended another species as a variety does not, in my opinion, matter one whit; were it otherwise, many names now recognised would not stand.

The following are the dates, &c., of publication referring to this insect.—

HOMALOTA ALGÆ, Hardy, Trans. Tyneside Nat. Field Club, ii, 78 (1851).

H. puncticeps, Thoms., Öfv. Vet. Ac. Förh., 1852, p. 133; D. Sharp, Rev. Brit. Hom., Trans. Ent. Soc. Lond., 1869, p. 140.

I may add, that the date of 1852 on the title page of the separate copies of our Catalogue of the *Coleoptera* of Northumberland and Durham was a printer's blunder; it should have been 1846—1852, as its publication in our Club's Transactions began in 1846, was continued in 1851, and concluded in 1852.—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne, *September 23rd*, 1870.

Note on British locality for Baridius scolopaceus.—In my communication referring to this species at p. 107 of the present vol., I inadvertently wrote "South" for "Kentish" coast.—G. C. CHAMPION, 274, Walworth Road, S., *6th October*, 1870.

Captures of Coleoptera during the past season.—At Whitstable, Kent, I have found *Ceuthorhynchus frontalis*, Bris., in quantity on *Artemisia maritima*, in June, un-accompanied by *C. troglodytes* (this will, I think, go far towards establishing the specific value of the insect). *Mordellistena pusilla* also occurred on the same plant, but rarely; *Lymnæum* sparingly, in a salt marsh; *Phytœcia cylindrica* and *Malachius marginellus* by sweeping; *Homalota puncticeps* (abundantly), *H. imbecilla* (rarely), *Heterothops binotatus* (in abundance), *Philonthus sericeus* and *Aleochara grisea* in decaying sea-weed, and *Donacia menyanthidis*, commonly, on reeds.

On the coast, near Portsmouth, in May, I found *Phytosus spinifer* and *nigriventris?* in some numbers (the latter being the commoner) in the sand under a swathe of sea-weed, in a somewhat similar manner to that recorded by Mr. T. J. Bold, in this Magazine. They are very difficult to detect, owing to their sluggish habits, and appear to go down some distance in the sand in dull weather, coming to the top when fine. *Hyperaspis* also occurred with them.

Whilst staying at Soham, Cambridgeshire, in July last, I endeavoured to investigate the *Coleoptera* of that district, but failed to meet with any but ordinary species, such as *Oödes*, commonly, in a marshy place, accompanied, sparingly, by *Panagæus crux-major* and *Philonthus fumarius*, *Haliplus mucronatus* (three or four specimens), *H. variegatus* (rarely), *H. affinis* (commonly), and *Hydræna testacea* in the ditches.

Three or four visits to Wicken fen produced a few better things; but, owing to the exceedingly dry season, beetles were very scarce. The following species, amongst others, occurred to me in the fen:—*Anthocomus sanguinolentus*, in abundance, on flowers; *Telephorus thoracicus*, rarely; *Phyllotreta sinuata*, two specimens (but lost one); *Apion vicinum*, *Crepidodera salicariæ* and *atropæ*, *Aphthona hilaris* and *Thyamis castanea*, by sweeping; *Chrysomela menthastri*, locally abundant on low plants; *Cassida equestris* and *vibex*; *Lina populi*, common on poplar; *Sphærius acaroides*, *Thinobius brevipennis* and *Homalota luteipes*, on the wet peat; *Carabus arvensis*, *Ilyobates nigricollis*, *Stenus nitens*, *palustris* and *fuscipes*, and *Scydmænus hirticollis*, in damp places; *Pseudopsis*, *Corticaria ferruginea*, and *Atomaria gutta*, in haystack refuse; and *Orectochilus* and *Ilybius fenestratus* in the ditches. I also took five specimens of *Colon brunneum* out of a tuft of grass in a wet place.

I have also taken *Anisoxya fuscula*, in some numbers, by beating dead branches at Darenth Wood; *Telephorus unicolor* and *Aphodius Zenkeri* at Sevenoaks; *Heterothops 4-punctulus* at Croydon, in haystack refuse; *Megapenthes tibialis* and *Anobium denticolle* in solid wood of oak, at Richmond Park; *Ceuthorhynchus biguttatus*, in some numbers, at roots of horn-poppy, *Masoreus*, *Platynaspis* and *Diglossa mersa* at Southend; and *Harpalus servus*, *H. cordatus*, *Cassida hemisphærica* and the unicolorous var. of *C. sanguinolenta*, and *Laccophilus variegatus* (in abundance) at Deal.—Id.

Captures at Deal from 22nd to 30th September.—With but few exceptions, insects had lived their appointed time, or had gone into winter quarters, and had to be unearthed if they were to be obtained. And such a scene as was developed of the mortal remains of those who had perished in or after the struggle for existence! It was like working in catacombs, or reviewing the havoc that a hexapod Moltke and Napoleon had wrought among their legions. For every living insect there were hundreds of dead ones in all stages of dismemberment. The great hiding places are under the moss which grows all over the sand hills, at the roots of the Marram grass.

Coleoptera.—There was the usual run of Deal *Geodephaga*, &c.; the best things I got were *Masoreus Wetterhalii*, scarce; *Sarrotrium clavicorne*, scarce, and difficult to see among the *débris* of the moss, &c., as they did not move; *Saprinus rotundatus*, scarce; *Helops pallidus*.

Hemiptera.—*Odontoscelis fuliginosus*, larvæ; *Sciocoris terreus*, plentiful under the short, dry moss, at the top of the hillocks. I got 50 or 60, and then left off taking them. When first shaken out of the moss they lie quite still for about five minutes, then give themselves a shake, and move no more for a long time, and, being just the colour of the sand, are not easy to see. The sexes were in equal numbers. *Eurygaster maurus*, one only. I did not find the difficulty in fixing the legs mentioned in Vol. vi, p. 183, probably because I let my example remain in laurel for a week. *Pseudophlœus Falleni*, one only. Usually common in August under *Erodium cicutarium*, but the roots of this plant were very small, and had nothing about them. *Chorosoma Schillingi*, a few, mostly mutilated. Of one example, one of the thighs had been broken, the ends at the fractured place had slightly overlapped and grown together; this thigh is therefore shorter than the other, as might have been expected, but the tibia and tarsus are also both shortened. *Neides depressus*, one only; *Trapezonotus agrestis*, very abundant, *the* bug of the period; *Rhyparochromus prætextatus*, common; *Agramma læta*, common; *Deltocephalus sabulicola*, among the Marram.

Lepidoptera.—*Aporophila australis*, five, sitting on the ground, without an attempt at concealment, and very conspicuous among the short grass. The want of "mimicry" was painfully apparent in the remains of many specimens lying about the sand-hills, the said remains consisting only of the thoracic segments and wings, the abdomen, in each instance, having doubtless formed a *bonne bouche* for one of the thousands of starlings which frequent the place. Yet, as the species is evidently not rare, the "survival of the fittest" to carry on the race is surely determined by a rough and ready process, in which the welfare of the birds, rather than of the insects, seems to have the first place.—J. W. Douglas, Lee, *October 7th*, 1870.

Capture in Britain of Plusia acuta, Walker.—I have to announce the capture in May last by my friend, Mr. H. P. Robinson, of Tonbridge Wells, of a specimen of *Plusia acuta, Walk.*, which entered his drawing-room window, no doubt attracted by the light. On looking over Mr. Robinson's captures in June last, I immediately detected the insect as something new. I am indebted to my friend Mr. Howard Vaughan for its name.—Henry Moore, 8, Sheffield Terrace, Kensington, W., *15th October*, 1870.

[This species, which is not mentioned in either of Guenée's Catalogues, is represented in the Brit. Mus. Collection by a single specimen, *from Congo, in Africa.* Mr. Moore's example was no doubt imported in the pupa state.—Eds.]

Occurrence in Britain of Acidalia ochrata, Scop., a species new to our list.—A short time since, Mr. Walter Weston placed in my hands for identification an *Acidalia* captured by himself near Red Hill, Surrey, on August 4th, 1869, and subsequently Mr. Sydney Webb, of Red Hill, has shown me a specimen of the same species which he also had captured in the previously mentioned locality in 1865. This *Acidalia* is, in my opinion, the true *ochrata* of Scopoli. Dr. Knaggs informs me that he has long looked upon this species as an inhabitant of Britain, and some time ago kindly gave me an example which, to judge by the setting, is undoubtedly British, although he was unable to furnish me with the locality in which it had been captured.—Howard Vaughan, Gaisford Street, Kentish Town, *8th October*, 1870.

Capture of Vanessa Antiopa in Suffolk.—A specimen of this rarity has been taken at Little Glemham, Suffolk, by a son of the Rev. R. King, the rector of that parish.—E. N. Bloomfield, Guestling, *October*, 1870.

Deilephila livornica at Glanville's Wootton.—We have taken a fine dark specimen of this insect from a scarlet geranium near the house.—J. C. Dale, Glanville's Wootton, Sherborne, 12*th October*, 1870.

Deilephila livornica at Perthshire—A specimen of this rarity has been caught by a girl near Bridge of Earn, during the past season.—F. Buchanan White, Perth, *October*, 1870.

Deilephila galii at Helston.—I yesterday evening saw in my garden at this place a specimen of this rare insect, hovering over white verbena; and, after watching it for some time, I knocked it down with my hat, and secured it for a time, but it recovered itself and flew away.—Henry Anstay, St. Wendron Vicarage, Helston, *August* 27*th*, 1870.

Deilephila galii in Fifeshire.—The perfect insect was taken on 7th August at Kinghorn, Fifeshire, and sent to me; this induced me to look for the larvæ, and, in a locality half-way between Glassmount and Kinghorn Loch, I found three in September, two of which have since spun up, and on October 3rd I took a fourth, which is still feeding.

I notice that these Fifeshire larvæ confine themselves to *Galium verum*, whereas those I had at Deal would eat *Galium elatum* (*mollugo*) equally well.—J. Boswell Syme, Kirkcaldy, 8*th October*, 1870.

Notes on Sphinx convolvuli.—By the kind permission of Mr. J. Boswell Syme, I am enabled to give the following dates of the capture and rearing of the larva of *Sphinx convolvuli* in this country.

Mr. Syme had three nearly full-grown larvæ brought to him on the 7th September, 1859; they went down on 12th and 13th of the same month, two of them becoming perfect pupæ; from one of which the imago, a female, emerged (as far as Mr. Syme can recollect) about the end of May, 1860.

The larvæ were found at Upper Deal, in a potato field, and fed on *Convolvulus arvensis*, but would also eat *C. sepium*; whilst in confinement they certainly did not hide or bury themselves by day, but fed away continuously. The moth contained undeveloped ova, about the size of poppy-seeds.

All the above particulars agree fairly well with my own observations on this species at p. 100, Vol. v, of this Magazine, except the date of the appearance of the moth; Mr. D'Orville and myself came to the conclusion that August and September are the months in which it should be looked for here, whereas the date given above is nearly three months earlier: confinement must have had something to do with it, but Mr. Syme tells me the pupa was not forced, except by being kept in a room without a fire in it.—J. Hellins, Exeter, *October* 12*th*, 1870.

Captures of several examples of Leucania albipuncta.—Since my last notice, Mr. S. Webb and I have captured several other specimens of *Leucania albipuncta* at sugar, during our stay at Folkestone. We also took examples of *Heliothis marginata* and *peltiger*.—Howard Vaughan, Gaisford Street, Kentish Town, 13*th October*, 1870.

Capture of Xylina Zinckenii at Darenth.—On the 2nd inst., I took a fine specimen of *Xylina Zinckenii* at rest on a sugared tree in Darenth Wood.—J. Moore, Willow Place, Stamford Hill, 6*th October*, 1870.

Cirrhœdia xerampelina at Manchester.—I bred a specimen of this species on the 4th and another on the 9th of August, from larvæ taken here. I think the species is unrecorded as occurring in this neighbourhood.—C. Campbell, 14, Blackburn Street, Hulme, Manchester, 10*th October*, 1870.

Tapinostola elymi at Cleethorpes.—Being at Cleethorpes about the middle of July, I went to look for *T. elymi*, and of course found it at home, though, owing to my being rather late, the specimens were not all so fine as could be desired.—Id.

Captures of Lepidoptera near Perth in 1870.—Several species not before found in the county or in the district have been taken in this neighbourhood during the past season. First in importance are three species new to the county lists—*Deilephila livornica* (above recorded), and *Noctua depuncta* and *Heliothis marginata*, taken by Mr. Marshall near Stanley. *N. depuncta*, was, I believe, common. Among other captures are *Chesias obliquaria* by Messrs. Marshall and Herd, *Dasydia obfuscata* in abundance by Mr. Herd, *Cirrhœdia xerampelina* by Messrs. Herd and Stewart and Sir Thomas Moncrieffe, *Aplecta occulta* by Messrs. Stewart and Marshall, and *tincta* by Mr. Herd,—neither species having been taken in the district before. New to the district also are *Orthosia suspecta*, taken by Mr. Stewart, and *Cloantha solidaginis*, taken by Messrs. Jamieson (on Kinnoull Hill), and by Mr. Marshall (at Dunkeld). This species seems widely distributed, but never common in Scotland. It is perhaps worth notice that Mr. Herd has bred *Ennychia cingulalis*, *Phycis subornatella*, and *Sciaphila Penziana* from moss. Probably in some, if not in all these cases, the larvæ had not fed on the moss, but only spun up in it. Mr. Marshall, whose capture of the larvæ of *Deilephila galii* I recorded in a previous number, has been fortunate enough to find twenty larvæ this season. F. Buchanan White, Perth, 11*th October*, 1870.

Notes on captures of Noctuidæ in Morayshire in 1870.—Upon the whole I think the season just past has been a very satisfactory one. It was, moreover, very early, for many species occurred fully a fortnight or three weeks before their customary time. In the month of April I paid several visits to the Altyre Woods, and saw many *Endromis versicolora.* Later on, *Lasiocampa rubi* was taken on the wing, and, in autumn, its larvæ swarmed on the moss. Many insects abundant in former years were very scarce this season, or altogether absent. Thus, the genus *Agrotis* was very poorly represented, and such species as *A. tritici* and *nigricans*, which, in 1869, occurred in vast profusion, were both rare. For the first time, I this year tried sugaring the trees on the banks of the Findhorn, and five or six species were taken that had not occurred to me at Cluny Hill; the distance between these places is hardly beyond a mile, thus proving the necessity of more than one collector working a limited district. The higher parts of the country with elevated moss and much natural birch-timber have not been explored, and are a *terra incognita* to the entomologist. Then again, the magnificent forests of Darnaway and Altyre, if carefully worked, would yield many insects new to the district.

Thyatira batis appeared 21st June, not uncommonly at sugar. *Cymatophora duplaris*, 29th June, excessively numerous at sugar. *Acronycta psi*, 4th June, common at sugar and at rest; *ligustri*, 20th June, frequent at sugar; *rumicis*, 26th May, abundant at sugar. *Leucania conigera*, 6th July, very abundant at sugar, and varying much; *lithargyria*, 29th June, swarming at sugar, and also varying much; *pallens*, 28th June, swarming at sugar and ragwort; *impura*, not uncommon at sugar. *Hydrœcia nictitans*, 30th July, swarming at sugar, and occasionally on ragwort by day; *micacea*, 30th July, not uncommon at sugar and on ragwort. *Xylophasia rurea*, 30th May, frequent at sugar and at rest; *polyodon*, 7th June, swarming at sugar, the black forms being, as usual, the earlier. *Charæas graminis*, 3rd August, rare at sugar and ragwort, apparently periodical in its appearance, abounding in vast profusion in 1869. *Cerigo Cytherea*, 5th August, a few specimens at a birch-tree infested with *Cossus*. *Luperina testacea*, 6th August, abundant, flying over grassy slopes and also at sugar. *Mamestra abjecta*, 18th July, rare, at rest; *anceps*, 15th June, frequent at sugar; *furva*, 6th July, occasionally at sugar; *brassicæ*, 12th June, frequent at sugar and at rest. *Apamea basilinea*, 7th June, as the last; *gemina*, not uncommon at sugar; *fibrosa*, 3rd August, three specimens at sugar, its food-plant not found in this district; *oculea*, 28th June, very abundant at sugar—varying as usual. *Miana strigilis*, 13th July, frequent at sugar; *fasciuncula*, 9th June, swarming at sugar and ragwort; *literosa*, 4th August, at sugar, but not so abundantly as usual. *Caradrina alsines*, 6th July, at sugar, new to this locality; *blanda*, 14th July, plentiful at sugar; *cubicularis*, 30th May, very frequent at sugar and at rest. *Rusina tenebrosa*, 7th June, very common at sugar. *Agrotis valligera*, 1st August, not uncommon at sugar and at *Cossus*-birch, bred also from larvæ from the Culbin sands; *suffusa*, 26th August, plentiful at sugar; *segetum*, 18th June, at sugar; *exclamationis*, 10th June, frequent at sugar; *corticea*, 17th June, not uncommon at sugar and at rest; *nigricans*, 30th July, not uncommon at sugar; *tritici*, 31st July, at sugar, much less common than usual; *agathina*, 30th August, not so frequent as, and later than, last season, although the larvæ swarmed in the heather; *porphyrea*, 15th June, as usual, very abundant; *præcox*, 27th May, larvæ on Culbin sands; I took fifty in half-an-hour from just beneath the sand on conical hillocks covered with a dense growth of *Salix repens*. I made sure of getting the pupæ later on, but dug for hours unsuccessfully; surely the larvæ must change at some distance from their food-plant. *Tryphæna janthina*, 2nd July, abundant at sugar; *fimbria*, 15th July, in great abundance at sugar, even up to 28th September; *subsequa*, 5th August, ten specimens, and these mostly in poor condition, more than half taken from a *Cossus*-birch; I failed in obtaining eggs for Mr. Buckler; *orbona*, 24th June, swarming at sugar; the black and red variety in great abundance; this was fortunate, as I secured several batches of eggs for Mr. Doubleday and other friends; some seem to doubt that this form is the same species, a point which will probably soon be cleared up; *pronuba*, 29th June, abundant at sugar. *Noctua glareosa*, 20th August, in great profusion at sugar; *depuncta*, 19th July, in abundance at sugar, as many as fifteen in one round; *augur*, 29th June, abundant at sugar, and variable; *plecta*, 1st June, frequent at sugar; *C-nigrum*, 15th June, very abundant at sugar; *triangulum*, 7th July, several at sugar; *brunnea*, 20th June, bred, frequent at sugar; *festiva*, 29th June, abundant at sugar; *conflua*, 28th June, in profusion at sugar; *Dahlii*, 2nd August, swarming at sugar; *rubi*, 22nd June, very common at sugar and ragwort; *umbrosa*, 14th July, swarming at sugar and ragwort, secured eggs for Mr. Buckler; *baja*, 7th July, abundant at sugar, varying much; one specimen *in cop.* with *Leucania pallens* (see page 88); *neglecta*, 17th August, abundant at sugar and heather-bloom; *xanthographa*, 21st July, as usual, swarming at sugar and ragwort. *Trachea piniperda*, 3rd April, larvæ, also swarming at sallows; in the pine-woods it flew so thickly that I have often had half-a-dozen in the net at once; many grey and green varieties which are probably same as var. A. of Guenée from Lapland and Sweden. *Tæniocampa gothica*, 30th March, swarming at sallows; *rubricosa*, 16th April, not unfrequent at sallows; *instabilis*, 2nd April, common at sallows; *stabilis*, 8th April, swarming at sallows. *Orthosia suspecta*, 10th August, one at sugar, new to this county; *macilenta*, 13th September, common at sugar. *Anchocelis rufina*, 29th August, swarming at sugar and varying much; *litura*, 20th August, in vast profusion at sugar. *Cerastis vaccinii*, 13th September, abundant at sugar. *Scopelosoma satellitia*, 7th September, as usual, very abundant at sugar. *Xanthia cerago*, 30th July, abundant at sugar, also the var. *flavescens*; *flavago*, 1st September, several at sugar; *ferruginea*, 8th August, swarming at sugar, varying much in size. *Euperia fulvago*, 23rd August, not common at sugar. *Cosmia trapezina*, 5th August, frequent at sugar. *Dianthœcia capsincola*, 21st June, not uncommon over *Lychnis vespertina*. *Polia chi*, 18th August, at sugar and at rest, but not so abundant as usual. *Epunda nigra*, 18th August, swarming as usual at sugar, and occasionally at rest. *Miselia oxyacanthæ*, 17th September, plentiful at sugar. *Agriopis aprilina*, 29th August, abundant at sugar, surely very early. *Phlogophora meticulosa*, 6th October, frequent at sugar. *Euplexia lucipara*, 18th June, frequent at sugar, Califer Hill. *Aplecta nebulosa*, 4th July, several at sugar. *Hadena adusta*, 20th May, frequent at sugar and at rest; *protea*, 8th August, swarming at sugar and at rest, unusually early; *glauca*, 29th May, rare at rest; *dentina*, 8th June, abundant at rest and at sugar; *oleracea*, 10th June, abundant at sugar; *pisi*, 16th June, at rest; *thalassina*, 6th June, frequent at sugar; *contigua*, 1st July, at sugar, new to this locality; *rectilinea*, 15th June, several at sugar on the Califer Hill, new to this locality. *Calocampa vetusta*, 22nd August, in far greater profusion than usual at sugar, this species always appears here in advance of the next; *exoleta*, 7th September, swarming as usual at sugar, as many as ten on one tree. *Heliothis marginata*, 1st July, one at sugar, new to this locality. *Anarta myrtilli*, 25th May, frequent, flying about, and settling upon, the flowers of *Cardamine pratensis*. *Brephos parthenias*, 4th April, in profusion among the birches in Altyre forest; *notha*, 9th April, not uncommon with the last. *Plusia v-aureum*, 6th July, a few specimens flying; *gamma*, 18th July, scarce this year; *interrogationis*, 13th August, one specimen knocked down when I was shooting at Lentran, near Inverness. *Amphipyra tragopogonis*, 3rd August, abundant at rest and at sugar. *Mania typica*, 29th June, very abundant at sugar on the banks of the Findhorn; I never saw the insect at Cluny Hill, although not more than a mile distant. *Stilbia anomala*, 8th August, occasionally flying, and at sugar. *Phytometra ænea*, 26th May, frequent over heather.—Geo. Norman, Cluny Hill, Forres, *October 8th*, 1870.

On the treatment of the hybernating larva of Bombyx rubi.—Like your correspondent, Mr. J. Hamilton (E. M. M., p. 110), and I believe the majority of entomologists, I have failed in my attempts to rear the larvæ of *Bombyx rubi*. Mr. A. Pickard, of Wolsingham, near Darlington, however, rears the species successfully, and his *modus operandi*, which I obtained in a letter from him dated September 9th, 1870, is as follows:—he fills a flower-pot half full of moss, into which, about the end of October, the larvæ are placed. The pot is then put in a corner of the garden, covered over with muslin, and over that he fastens a piece of cardboard to keep it from too much rain. A few plum leaves are put in the pot occasionally so long as they last; but when examined, the larvæ are almost always down amongst the moss. The principal thing appears to be, to let the larvæ be exposed to all weathers except the heavy rains. The pot was frequently covered with snow, but, the moss not getting wet, the larvæ took no harm.

This is the substance of Mr. Pickard's remarks on the subject; any entomologist wishing for further information, will, I doubt not, readily obtain it, on applying to that gentleman.

I have found no difficulty in rearing many hybernating larvæ. I always endeavour to keep a bit of green leaf (or withered, if not too dry, and the proper food so long as possible) in the breeding cage, for them to "nibble" any sunny day during the winter months. A large number of species, *Callimorpha dominula*, and many, perhaps all, of the *Acidaliæ*, for instance, I suspect could not be kept without this precaution, though it is not necessary for such species as *Liparis salicis*, which spend the winter in little silken cocoons.—GEO. T. PORRITT, Huddersfield, *October 4th*, 1870.

Variety of Chelonia caja.—I have now on one of my setting boards a very curious variety of *Chelonia caja*, which was bred last month from a second brood, by Master Samuel Bairstow of this town. The dark chocolate colour occupies the whole of the fore-wings, there being only a faint trace of the usual white markings; the hind-wings are black, edged on the inner margin with brick-red, the spots of course being obliterated. The specimen is a male, and, like most dark varieties in this species, is rather crippled; this fact being to my mind one strong point of evidence in favour of the theory, that disease is to a great extent the cause of variation in *Lepidoptera*.—ID.

Food-plants of Eupithecia campanulata.—About a month since a friend wrote to me begging that I would send him a few larvæ of *Eupithecia campanulata*. I was much occupied at the time, and could not well manage to walk to the woods, rather more than a mile distant, where I have been in the habit of taking this larva on the seed-pods of *Campanula trachelium;* so I turned out into the garden, where, amongst a collection of herbaceous plants, I have various species of *Campanula* growing. In a short time I found the larva of this *Eupithecia* on the following species:—*Campanula persicæfolia, media, latifolia, collina, patula, carpatica, rapunculus, rapunculoides, urticæfolia*, and *Phyteuma campanuloides*. I gather from this that we may expect to find the larva of this moth on most (if not all) of the British *Campanulæ*.—H. HARPUR CREWE, The Rectory, Drayton-Beauchamp, Tring, *September 19th*, 1870.

A correction concerning the genus Phytoptus.—In the condensed report of the Proc. of the Ent. Soc. of London, on the 4th July, 1870 (ante p. 67), I am said to have suggested, that various forms of *Acari*, for which Professor Westwood then proposed the new generic name of "*Acarellus*," were identical with those described by "Dejean" under the name of *Phytoptus*.

I have indeed a recollection that I did say "Dejean," but I desire to mention that this was an obvious error of utterance for "Dujardin," as, of course, it is well known that the energetic Count Dejean, who made his horsemen collect beetles during the lull of reconnoitrings and fights, never published any papers but on his favourite order *Coleoptera*.

Besides, as bearing on the knowledge of the genus *Phytoptus*, I find a note by my esteemed correspondent M. Lichtenstein, of Montpellier, in the "Bulletin de la Soc. Ent. de France, 4me sér., Vol. 10, pg. 1," in which this gentleman incidentally mentions, that the *Phytoptus* foreseen by Réaumur (Vol. iii, mém. 12), has been named by Turpin and Latreille *Sarcoptes gallarum tiliæ*, and has been well described by Dujardin in the Annales des Sci. Nat., 1851, pg. 166.—ALBERT MÜLLER, South Norwood, S.E., *September 17th*, 1870.

Review.

VERZEICHNISS DER SCHMETTERLINGE DER UMGEGEND VON HALLE AN DER SAALE. By A. STANGE. Leipzig: E. Kummer, 1869.

Halle, where Germar lived, must, to any entomologist, be a sort of sacred ground. The author of the present Catalogue of the *Lepidoptera* in the neighbourhood of Halle, is now no more.

The Catalogue we have before us is very carefully written, and shows considerable powers of observation; and we have no doubt that it will furnish many a useful hint to British Entomologists.

It must be a matter of regret to us that Herr Stange, from whom much might have been expected, should have died so young (he was only in his 35th year); his unpretending little work of 108 pages teems with notes of interest to all engaged in working out the histories of our *Lepidoptera*.

At p. 35, we are informed that the larvæ of *Trachea atriplicis* strayed by thousands from a field of oats across a road, occupying a space of twenty paces in width, and being thirty-six hours in transit. Amongst them were many larvæ of *Spilosoma menthastri*, which eagerly sucked up the juices of such larvæ of *atriplicis* as were trodden on. The cause of this migration was altogether inexplicable, as there was no lack of food amongst the oats which they quitted.

The rare *Mussehliana* may soon be an inmate of all our cabinets, if we bear in mind that it was "once bred abundantly from the seeds of *Butomus umbellatus*." Of *Ochsenheimeria vacculella* we read—"one year this occurred on the windows of a house in innumerable quantities; since then only singly, at the same place." How this insect finds its way into houses, is at present one of the most perplexing problems of the Micro-Lepidopterist.

Of *Œcophora Schæfferella* we read—"in May and June all about, on the trunks of old trees, especially willows and poplars, but always singly."

ON THE OCCURRENCE OF THE NEUROPTEROUS GENUS *SIALIS* IN CHILI.

BY R. M'LACHLAN, F.L.S.

It has long been known that the Chilian insect-fauna includes several genera otherwise peculiar to the temperate portions of the northern hemisphere, but which put in an appearance in that country, though absent in the intervening regions. It would perhaps be wrong to say that the forms are absolutely identical, but the differences are so slight as to render it unnecesary to separate them generically. Another link in the chain of resemblances has just occurred to me. In a collection of Chilian insects sent home by Mr. Read, is a *Sialis*, which, though differing somewhat in facies from the northern forms, may yet be retained in the genus. It should, however, be noted that a species has been already described from Cuba, so that the evidence is not quite of the same weight as that afforded by some other genera. I propose to describe Mr. Read's insect as—

SIALIS CHILENSIS, *n. sp.*

S. fusco-nigra; capite rufescente, fusco-nebuloso. Prothorax angustè transversus. Abdominis lamina ventralis in processum lanceolatum producta. Alæ fumatæ: anticæ elongatæ, angustatæ, obtusæ; venis paullo elevatis, nigris; areâ costali angustatâ, vix dilatatâ: posticæ anticis paullo latiores. ♂.

Long. corp. 7 mill.; exp. alar. 29 mill.

Head reddish, an impressed median longitudinal line reaching the hind margin, joining a sinuate line in front before the antennæ; frontal portion, and a large space on each side of the median line suffused with fuscous, a fuscous spot on each side below the eyes; labrum truncate in front, testaceous; antennæ and palpi black, the former very slender; eyes larger and much more prominent than in the other species of the genus. *Thorax:* prothorax blackish-fuscous, very narrow, forming a transverse parallelogram; meso- and meta-thorax blackish-fuscous; the whole thorax with a very short pubescence. *Legs* blackish-fuscous, with short pubescence; lobes of the fourth tarsal joints beneath, and the claws, testaceous. *Abdomen* black; ventral lamina commencing as a broad triangular base, the apex being drawn out into an acute lanceolate process curved over the apex of the abdomen (appendices not definable in the dried insect).

Wings uniformly smoky, somewhat shining, the membrane with very short black hairs; in each wing there is a pale space below the junction of the radius to the costal margin; veins comparatively fine, little elevated, black. *Anterior wings* long and narrow, the apex longly elliptical; costal area narrow, very slightly dilated, with about seven nervules; upper branch of the sector simply furcate at its end (like the lower); an oblique line of three transverse nervules before the apex; discal nervules few: *posterior wings* slightly broader than the anterior; the sub-costa and radius conspicuously black; transverse nervules few in number.

Differs considerably from northern species in the form of the anterior wings, which resemble those of *Perla*, whereas they are ordinarily short, broad, and obtusely angular, with a strongly dilated costal area, and strong and elevated veins; also in the extremely narrow prothorax, generally delicate appearance, and larger eyes.

As a contribution to a knowledge of the distribution of the genus, I may here note that Baron De Selys Longchamps possesses one male *Sialis* from Japan, identical with, or closely allied to, *S. lutaria*.

Lewisham: 12*th November*, 1870.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

(Revision of the Family *Cixiidæ*).

BY JOHN SCOTT.

(*Continued from page* 123).

B.

1.—*Marginal nerve* with two or three of the granules, at irregular intervals, generally united.

Species 2.—CIXIUS NERVOSUS.

Cicada nervosa, Linn., S. N., ii, 709, 25 (1767); Fab., Ent. Sys., iv, 442, 64 (1794).

Cicada cunicularia, Linn., S. N., 465, 44 (1767).

Flata nervosa, Fab., Sys. Rhyn., 54, 47 (1803); Germ. Mag., iii, 191, 5 (1818); Fall., Hem. Suec., ii, 71, 1 (1826); Germ., Thon Archiv., ii, 48, 27 (1829).

Cixia nervosa, Burm., Handb., ii, 157, 2 (1835).

Cixius nervosus, H. Schf., D. I., 112, 22; Zett., Ins. Lapp., 304, 1 (1840); Am. et Serv., Hem., 508, 1 (1843); Marshall, Ent. Mo. Mag., i, 154, 1 (1864); Kirschb., Cicad., 46, 2 (1868).

Elytra without a band before the apex, the first nerve at the base, as far as the bifurcation, brown or black, transverse nerves black, the space between them and the apex with several more or less distinct pale fuscous or brownish patches.

Head black, margins and middle keel yellow; *forehead* piceous, margins yellow. *Face* black, keels yellow, clypeus yellow, apex on each side of the middle keel black. *Antennæ* brown or yellow.

Thorax: pronotum yellow, the portion beneath the eyes and the disc behind the side keels, more or less broadly black. *Scutellum* black, middle keel, and sometimes the apex of the side keels, clear brown, or frequently all the three keels brown. *Elytra:* marginal nerve fuscous or yellowish, inner nerves pale yellow, granules black, of an elongate shape, deposited irregularly, two or three occasionally confluent where the transverse band passes across, and also at the bifurcations of the nerves, each granule bearing a short black hair; from the transverse nerves to the apex the granules on all the nerves are frequently confluent, so that the nerves appear black, transverse nerves black, margined on one or both sides with fuscous-brown; *clavus*, marginal nerve next the apex with six or seven granules, or the granules confluent, and forming two short streaks. *Wings* pale, transparent, or more or less fuscous, marginal and inner nerves black, bases of all yellow. *Legs* yellowish or fuscous; *thighs* next the apex frequently dark brown; *tibiæ* sometimes with a blackish patch at the base, on the outside; *tarsi*, 1st and 2nd pairs brownish-yellow or fuscous, 3rd joint black, 3rd pair yellowish, 3rd joint sometimes brown.

Abdomen black, margins of the segments on the sides very narrowly orange-reddish; *genital segment* black, or occasionally chestnut-brown; "claspers" fuscous.

Length, 3—3½ lines.

This is our commonest species, and is to be met with everywhere, by beating trees and bushes, from June to September.

Species 3.—CIXIUS INTERMEDIUS.

Cixius intermedius, Fieb. (M.S.).

Head and *face* yellow, or pale brownish-yellow; *pronotum* pale chestnut-brown, darker on the sides. *Elytra:* marginal granules somewhat square. *Genital organs* pale brownish or yellowish.

Head: Face, lower portion next the clypeus, with a more or less axe-shaped pitchy patch on each side of the middle keel. *Antennæ* black, apex of the 2nd joint brown.

Thorax: pronotum yellow. *Scutellum* clear brown, darkest on the sides from beyond the side keels, apex depressed, and very finely wrinkled transversely. *Elytra* somewhat of a chalky or milky hue, or with a slight brownish shade, anterior marginal nerve yellowish-white as far as the cuneate patch, from thence round the apex fuscous, granules along the marginal nerve somewhat square, and placed at different intervals in different individuals, granules on the inner nerves of a somewhat loose appearance, somewhat thickly disposed, and placed more or less in pairs, one granule on the right hand side of the nerve, and the other on the left, each granule bearing a short black hair; transverse band generally of an almost uniform width, more or less dark brown, and more or less distinct, it curves slightly outwardly, and reaches the inner margin nearly in the middle of the clavus, transverse nerves very narrowly black. *Wings* pale, transparent, nerves black. *Legs* yellow; *thighs* of all the pairs fuscous-brown; *tibiæ* sometimes with a fuscous shade.

Abdomen black, margins of the segments on the sides slightly reddish or yellowish; *genital segment* brown; "claspers," &c., yellowish. Length, 2½—3 lines.

Smaller than *nervosus*, to which it is related. The different arrangement of the granules on the nerves, the shape of those along the anterior margin, and the colour and form of the genitalia are the most conspicuous characters whereby to seperate them.

Possibly this insect may be found in collections under the name of *nervosus*. At present I only know of a few examples, four taken by Mr. Bold, at Gosforth, near Newcastle-on-Tyne, a ♂ taken by Mr. Edward Saunders, at Penzance, and two others by Mr. Douglas, at Hirst Wood, Tunbridge Wells.

Time of appearance, August and September.

Species 4.—CIXIUS BRACHYCRANUS.

Cixius brachycranus, Fieb. (M.S.).

Elytra: marginal granules *not* square or elongate.

Head: *crown* and *face* brown, the latter darkest towards and at the apex, all the keels paler. *Antennæ* black.

Thorax: *pronotum* clear brown, shining, middle keel continued to the apex, which last is depressed and wrinkled transversely, extreme apex and side margins yellowish. *Elytra* faintly yellowish, transparent, marginal nerve yellowish as far as the cuneate patch, from thence round the apex fuscous; inner nerves fine, pale yellowish, all the granules minute, black, placed moderately closely together, and generally in pairs, slightly inclined from left to right towards the apex, transverse nerves fuscous, with a narrow margin of the same colour, inner margin of the fuscous cuneate patch with three or four granules; transverse band brown, narrow, more or less distinct, commencing on the anterior margin about midway between the base and the cuneate patch, and terminating a little beyond the middle of the inner margin of the clavus, along which are a few remote granules, larger than those on the corium. *Wings* pale, transparent, nerves fuscous, except at the base, where they are yellowish. *Legs* yellow; *thighs* more or less fuscous.

Abdomen black; *genital segment* pitchy-brown; "claspers," &c., yellowish.

Length, 2½ lines.

A smaller insect than *intermedius*, with the marginal granules, as well as those along the nerves of the elytra, more minute. The "claspers," however, are very similar in each, and, until I have seen more specimens, I admit that I am somewhat sceptical as to its distinctness.

I have made the description from a single ♂ example taken by Mr. T. J. Bold, at Gosforth, near Newcastle-on-Tyne, in September.

(*To be continued*).

Occurrence near Cirencester of a species of Melöe new to Britain.—Last month, I took here a single specimen of a *Melöe* not agreeing in my opinion with any recorded British species, and which Dr. Sharp, to whom I have sent it, states to be certainly new to our list. When at Oxford last week, I was enabled, by Professor Westwood's assistance, to compare this insect with the various species of *Melöe* in the Oxford Museum, of which it seems to agree best with *M. decorus*, Brandt, Er.,—stated to be the same as *M. pygmæus*, Redt., by Gemminger and v. Harold (*pygmæus* of Mus. Oxon., however, does not quite agree with my insect).

Of our known species, it comes nearest to *M. rugosus;* and is small (4 or 5 lines long), of a very dark blackish-blue colour; with very transverse thorax, which has three longitudinal grooves; a large head and filiform antennæ. The thorax is peculiar, and similar to that of the type of *decorus*, but differs from that of *pygmæus* in Mus. Oxon.—W. R. McNab, Royal Agricultural College, Cirencester, *November*, 1870.

Note on the occurrence in Britain of Trachyphlœus myrmecophilus, Seidlitz (Die Otiorhynch. s. str., 1868, *p.* 124; *Berl. Ent. Zeitschr.*, 12 *Jahrg., Beiheft*), *with observations on a second British species of Cathormiocerus, and on the value of that genus.*—When examining some *Trachyphlœi* recently sent to me by Mr. H. Moncreaff, of Southsea (whose continuous captures of most interesting *Coleoptera* in that neighbourhood put to shame the voluminous Catalogue of trivialities, professing to be exhaustive of its beetle-fauna, published some few years ago in the "Zoologist"), I detected a single example of a species which seems to me to accord very satisfactorily with the above recorded insect, recently described from the Escurial. The wide difference in the localities is not of much account, seeing that we have certainly two British species of *Cathormiocerus* (the second also owing to Mr. Moncreaff, and upon which I propose to make a few observations), and that Mr. Moncreaff's captures of *Oxynoptilus cuspidatus*, *Philonthus cicatricosus*, &c., have prepared us for almost anything truly European. The only discrepancy that occurred to me between the description of *T. myrmecophilus* and Mr. Moncreaff's specimen was in the size, which, according to Seidlitz, should be slightly less than that of *T. squamulatus*,—the reverse being here the case. But Seidlitz does not seem to have had many examples before him; and I find a very considerable difference in size occurs in the Southsea insects (Mr. Moncreaff, on my drawing his attention to the novelty of his species as British, immediately hunted for and succeeded in capturing several more specimens, near Lumps pond, Southsea Beach), the smallest of which is smaller than average *squamulatus*, whilst the largest is rather larger than any *aristatus* that I have seen.

Seidlitz states his insect to be not unlike his *Cathormiocerus Chevrolati* (with which the second British species of *Cathormiocerus*, above alluded to, has many characters in common, being also not unlike the *Trachyphlœus* now recorded), and also points out its resemblance to the Madeiran *C. curvipes* of Wollaston, from which the uncurved scape of its antennæ seems chiefly to distinguish it, in spite of the two species being supposed to belong to different *genera*. Mr. Wollaston has kindly sent to me for examination several of his *C. curvipes*, and I find that the autumnal fresh and slightly tesselated examples of the *Trachyphlœus* taken by Mr. Moncreaff are extremely like that species,—differing from it, however, as mentioned by Seidlitz.

Mr. Moncreaff's insect agrees with Seidlitz's *myrmecophilus* in being as it were intermediate between *T. aristatus* and *T. squamulatus*, differing, however, structurally from both. It has the stout, clubbed, elytral setæ of *aristatus* (though they are not *quite* so pronounced), but its thorax is not so wide, and its elytra are more elongate, not being so inclined to globose-oval. The second segment of its abdomen, moreover, is divided from the first by an arched suture, and is longer than the 3rd and 4th segments together; whereas in *aristatus* the second segment is divided from the first by a straight line, and is scarcely so long as the 3rd and 4th segments together,—the segmental divisions, also, being stronger. From *squamulatus* it recedes in its much stouter and more evident elytral setæ, its larger eyes, laterally more rounded and bristly thorax, rather longer second abdominal segment, and less horizontal antennal furrow or "scrobs," which is directed at first rather upwards and then down towards the eye, and has its upper margin not so sharply defined.

The second British species of *Cathormiocerus* above mentioned (of which I have seen some five or six specimens, taken by Mr. Moncreaff at different parts of the north-east side of the island of Portsea, from moss, roots of plantain, grass, &c., and for a fine example of which I am much indebted to that gentleman) was originally brought before my notice by Mr. G. R. Crotch, who submitted it to me for comparison with my type of *C. socius* from Sandown, and who has subsequently sent it to Dr. Seidlitz for determination. I have, therefore, thought that a few notes on the differences between the two insects may not be uninteresting; especially as the Portsea species does not satisfactorily accord with any in Seidlitz's monograph. Compared with my *socius*, it is flatter, shorter, broader and darker, with the punctures of the striæ of the elytra larger and rounder, the thorax broader, with its sides more suddenly and strongly widened before the middle, and the rostrum more equally broad (the antennal furrows not being so approximated), with its longitudinal furrow not so conspicuous, being, indeed, scarcely perceptible; the scape of the antennæ is thicker and shorter, not so angularly dilated at the base on the side next the eye, but more so on the outer side; the joints of the funiculus are much shorter and stouter; the elytral setæ are shorter, finer, and nearly black instead of yellowish; and the clothing of scales is not so bright or variegated. The antennal furrows form broad grooves, deep at the base, slightly curved downwards towards the eyes, where they are shallowest and smooth, and with their upper margin the most distinct and reaching to the upper fore margin of the eye. When viewed from above or from the front, these grooves are not so open as in my *socius*, in which insect the whole furrow is more directed upwards, with its lower margin the most distinct, being elevated and curved upwards until it merges with the upper margin considerably in front of the eye: this upper margin has a small abrupt and angular process (entirely wanting in the Portsea species) just before the point of junction of the two margins, and the whole furrow forms a pit-like enclosure for the accurate reception of the dilated base of the scape. The space between the back of this pit and the eye is not smooth and shining (as in the corresponding portion in Mr. Moncreaff's insect), but, though slightly depressed for the reception of the shaft of the scape, has the longitudinal roughnesses of the head continued over it.

In all the specimens of Mr. Moncreaff's insect that I have recently examined the scape of the antennæ is equally dilated at the base, the joints of the funiculus are equally stout and short, and the claws of the anterior legs are not connate; so that, unless all are of the same sex, none of the recorded sexual differences of *Cathormiocerus* are exhibited. Those differences appear to be of a somewhat promiscuous nature, as an excess of development in the antennæ is apparently common to both sexes, the funiculus being sometimes much thicker in the ♀, and the scape dilated or curved (or both) in the ♂; sometimes, also, the ♀ has the tarsi of the four anterior legs with free claws, whilst they are connate in the ♂; and sometimes no sexual discrepancy is evident. It seems very doubtful, however, from Seidlitz's observations, whether in certain species the thickened scape be really indicative of the ♂ only.

I fully expect that future Entomologists will consider *Cathormiocerus* as not generically separable from *Trachyphlœus*. After stating that individual forms of the two come very near each other, the only reliable distinguishing character that Seidlitz can establish for the former is that its under-side is clothed with shining, granuliform, connate (and therefore not to be abraded) scales, instead of simple dull scales as in the latter. This strictly superficial character is, indeed, evident when such insects as *C. curvipes* and *T. scaber* are compared; but *T. squamulatus*, *alternans* and *aristatus*, as far as my experience goes, do not possess the scaling supposed to be peculiar to *Trachyphlœus*, being, at the very least, intermediate in that respect between *T. scaber* and the shining, granulated under-surface of *Cathormiocerus;* whilst the insect above recorded as *T. myrmecophilus* is scarcely, if at all, distinguishable as to its abdominal surface from *Cathormiocerus*,—as, indeed, might almost have been inferred from Seidlitz's observations, whose evidently accurate eye compels him more than once to assimilate that species with others of the supposed different genus. Apart from this, it seems unreasonable to consider differences in the opacity or density of scales or granulations as worthy of affording *generic* characters. *Erirhinus æthiops* and *E. bimaculatus*, *Strophosomus limbatus* and *S. coryli*, *Apion astragali* and *A. malvæ*, *Phyllobius viridicollis* and *P. uniformis*, *Otiorhynchus atroapterus* or *O. rugifrons* and *O. septentrionis*, with other *Curculionidæ*, at once suggest themselves as instances of congeners widely differing in such a superficial way. The extreme development of the antennæ in some *Cathormioceri* (accompanied by peculiarities in the antennal furrows), being mostly, if not entirely, sexual, and not being found in all the species, deserves no particular stress as a generic character, and is quite equalled by the peculiar structure of the tibiæ in some *Trachyphlœi*. Seidlitz, indeed, does not urge this point, and even acknowledges that in *C. lapidicola*, Chevr. (for which, in spite of its being one of the most *outré* species, Brisout's genus *Schaumius* is rejected by him), the unusual dilatation of the hind tibiæ is a reproduction of the structure found in the first group of *Trachyphlœus*. When we remember that even *C. socius* was disbelieved as British, it seems not improbable that an erroneous supposition as to the species of *Cathormiocerus* being restricted to the countries of the Mediterranean may have hitherto contributed not a little to the idea that those species were generically distinct from *Trachyphlœus*.—E. C. Rye, 10, Lower Park Fields, Putney, S.W., *November*, 1870.

Note on a species of Ptenidium new to the British list.—In 1869, M. Bonvouloir published in Ann. Soc. Ent. Fr., 4e sér., ix, p. 412, descriptions of two new species of *Trichopterygia* discovered by M. Wankowiez in Lithuania, and named by him *Ptilium modestum* and *Ptilium intermedium*, and through the kind exertions of Mr. Crotch, I have lately had an opportunity of examining the type specimens of both these species. The former, *P. modestum*, is very closely allied to *P. myrmecophilum*, but differs from that insect in sculpture, form and size, sufficiently, I think, to warrant its separation. It has not to my knowledge been found in Britain.

The latter, *P. intermedium*, represents a form which I had some years ago separated from *P. evanescens* (*apicale*, Erichs.), but subsequently had replaced in that species as a variety. My reason for doing this was that I had seen only one specimen, which was not thoroughly mature; and, moreover, the points of difference which it presented, viz., a less tumid thorax, and deeper punctuation, were such as often result from the drying of an imperfectly matured insect. But, now that other specimens, all bearing the same distinctive characters, have occurred, both in this country, and also on the continent, there cannot, I think, be a doubt that M. Wankowiez has done right in dividing this form from *evanescens*.

Since, however, it is possible that some entomologist may follow the bad example of Gillmeister and again include all the species of this group under one generic appellation, I propose to avoid the repetition of "*intermedia*," Gillm., by calling this species, after its captor, "*Vankoviezii*."

The characters by which it may be known from *P. evanescens* are these:—the thorax is less tumid both on the upper surface and the sides; the usual foveæ at its base are much more distinctly marked; the punctuation, both on the thorax and elytra, is deeper and more distinct; and the colour is throughout of a more rufous tint.—A. Matthews, Gumley, Market Harborough, *October*, 1870.

Note on Ptenidium intermedium, Wankowiez.—Among some *Coleoptera* recently sent for determination by me to Mr. Rye, was a single example of a *Ptenidium*, which that gentleman informed me was certainly new to our list, and which our great master of these little creatures, to whom he sent it, refers to M. Wankowiez's insect above recorded. I found the species near Scarborough, underneath rotten birch bark, in the months of March and April.—Thomas Wilkinson, 6, Cliff Bridge Terrace, Scarborough, *October*, 1870.

Observations on Homalium Heerii.—The specimen so named in my collection and given to me by my friend the Rev. Thomas Blackburn, who introduced the species to our lists on the authority of it and of other examples taken by himself at Rannoch, in July, 1866 (E. M. M., Vol. iii, p. 93), is certainly not specifically separable from the much vexed *H. vile*, Er., of which it appears to be either a light-coloured variety or an immature individual,—probably the former. I may observe, also, that, at a recent meeting of the Entomological Club, Dr. Power remarked to the same effect as regards his own British exponents of *H. Heerii*. M. Fauvel, when recently engaged on the *Brachelytra*, was glad to avail himself of a sight of my specimen above mentioned, which, sent as *H. Heerii*, was returned by him to me without comment. It seems not improbable that these Scotch insects really represent *Heerii*; which, in that case, would of course have to sink as a synonym of *H. vile*.—E. C. Rye, 10, Lower Park Fields, Putney.

Observations on Homalium brevicorne, Er., and H. gracilicorne, Fairm.—Among some *Coleoptera* recently sent to me for examination by my friend Mr. T. J. Bold, I find some examples of an insect (taken recently by Mr. J. Hardy, at Wooler, in fungus on alders) which I am convinced is the *Homalium brevicorne* of Erichson,—already included in our lists, though doubt has been thrown by M. Fauvel as to its being truly British. When fully mature, as are Mr. Bold's specimens (sub-cortical species are well known to remain frequently for an unusually long time of a pallid colour), it resembles *H. monilicorne*, with which alone Erichson compares it, his trivial name for the species being thus intelligible; but it is considerably smaller, with more strongly and closely punctured thorax and elytra (the former of which is less transverse), and more transverse joints to the apical half of the antennæ, and without the two deep foveæ at the base of the head. It is more closely allied to the recently added *H. gracilicorne*, Fairm., but is larger, especially broader, darker, with the usual dorsal thoracic foveæ (or, rather, a shallow central depression towards the base, having a slight medial elevation), the thorax less rounded at the sides and more contracted behind, the apical joints of the antennæ more transverse, and the punctuation of the elytra closer, being almost rugulose in places.

To *H. brevicorne* must, in my opinion, also be referred two specimens of an insect mentioned in my record of *H. gracilicorne*, (Ent. Ann., p. 88) as taken by Dr. Power, at Balmuto, in Fifeshire, and which, compared with Mr. Bold's specimens, are slightly immature; these, kindly given to me by Dr. Power himself, were named *gracilicorne* for me by M. Fauvel, evidently in error, as the close punctuation of their elytra, and their possession of evident thoracic depressions, remove them from that species. My London-district specimen, referred to in the same place, which has also been corroborated by M. Brisout, the original detector of Fairmaire's species, is unquestionably true *gracilicorne*, and is the only British example that I have seen. It is rather larger than *H. vile*, much lighter in color, with stronger and not so close punctuation on the thorax, the sides of which are more rounded and which has no dorsal depressions, and with the punctuation of the elytra coarser and not so close,—not forming occasional striæ.

Kraatz (Ins. Deutschl., ii, 993, note) rightly considers *H. brevicorne* as more nearly allied to *H. vile* than to *monilicorne*, and to be separable from *vile* by its strong punctuation (also by its larger size, more robust and broader build, more shining thorax and stouter antennæ, and by the punctuation of its elytra being more confused, and not forming occasional striæ); nevertheless, the superficial resemblance between large and fully mature specimens of it and *H. monilicorne* is considerable.

Mr. Matthews, as mentioned in Ent. Ann., 1870, demurs to M. Fauvel's opinion that his *brevicorne* is *vile*, var., as he has never hitherto parted with the possession of it, and M. Fauvel can, therefore, have had no means of forming a correct opinion.—Id.

Note on Trogophlœus foveolatus, Sahlb.—Among some Coleopterous enigmas propounded to me by the indefatigable Dr. Power, I find three examples of this species, which, with the exception of the pair in Mr. G. R. Waterhouse's collection, are all that have hitherto come under my observation as British, out of the large number of *Brachelytra* from all parts of the country that have from time to time been sent to me for examination.

Compared with its ally, *T. corticinus*, this species is shorter, small and proportionately broader, of a deeper black colour (the legs being deep black with yellowish points), with shorter antennæ, four more evident thoracic foveæ and coarser punctuation on the elytra. Its larger size, and broader and flatter build, and the thoracic foveæ and much stronger elytral punctuation, distinguish it from *T. halophilus*, Kies., which resembles it in some respects.—ID.

Note on food-plant of Cryptocephalus Wasastjernii.—Mannerheim (Bull. Mosc., xvii, p. 176, 1864), in a paper of the highest interest to a collector (seeing that he gives careful details of sifting, &c.), states that *Cryptocephalus Wasastjernii* lives on *Carduus heterophyllus*, in shady places. G. R. CROTCH, University Library, Cambridge, *November*, 1870.

[Dr. Power has, during the past summer, taken this species at Woodbastwick, near Horning.—E. C. R.].

Notes on Portsea Coleoptera.—*Dyschirius angustatus;* a few specimens taken in a broad ditch at Hayling Island, by washing sand in winter and early spring (E. M. M., vi, p. 213). *Drypta emarginata;* occurs in some numbers at roots of *Anthoxanthum odoratum*, in March and April, in roads to Alverstoke. *Zabrus gibbus;* abundant in July, off the stones near parade ground, Portsmouth. *Trechus lapidosus;* Hayling Island, near the ferry, in April. *Lymnæum nigropiceum;* Southsea Beach, spring. *Tachys bistriatus;* Cumberland Fort, behind Coast-Guard Station, out of moss. *Oxynoptilus cuspidatus;* abundant in the Canal near Milton, April to September. *Hydroporus unistriatus;* one specimen at the Salterns, and two out of the Canal, May. *Anisotoma ciliaris;* one near the Cumberland Fort, in August. *Syncalypta setigera* and *Copris lunaris;* Hayling, May. *Aphodius porcus;* Southsea beach. *Homaloplia ruricola;* once, from black-thorn, Portsdown Hill, May. *Lucanus cervus;* common, on the wing in June, mostly under *elm*-trees. *Trachys nanus;* Southwick. *Throscus obtusus;* Great Salterns, Portsea. *Hedobia imperialis;* bred from larvæ found in dried *bramble* sticks, February. *Ptinus lichenum;* out of old basket in cellar. *Baridius lepidii;* moss, Cumberland fort. *Phytobius Waltoni* and *Litodactylus leucogaster;* Canal, moss, in the spring. *Ceuthorhynchus constrictus;* on *Alliaria officinalis*, never from *Sisymbrium*, June. *C. verrucatus;* abundant at Hayling, among dead leaves, under *Glaucium luteum*. *Gymnetron noctis;* larva feeds on unripe seeds of *Linaria vulgaris*. *Tychius Schneideri;* Whitham hill, June. *T. squamulatus;* Cumberland Fort, Southsea. *Sibynia sodalis;* very abundant on flowers of sea-thrift, at the side of Cumberland fort, in June. *S. arenariæ;* Lumps, near Southsea. *S. primitus;* Portsdown Hill. *Magdalinus cerasi;* on *elm*, rarely, at Polwell, in June. *Apion confluens;* from horned-poppy, Hayling, in October (perhaps only connected with that plant for shelter). *A. limonii;* rare on *Statice limonium;* in July and August, the high tides drowning it. *Bagöus lutulosus;* rare, in holes in the sand near Lumps pond. *B. laticollis;* abundant in moss, Canal, May. *B. inceratus;* near Lumps pond, Canal, and Salterns, not common. *Mecinus circulatus;* under *Plantago coronopus*, most likely from galls on that plant. *Erirhinus pillumus;* flower-heads of *Matricaria*, May and June. *Hylobius abietis;* commonly, on flower-heads of thistles, *in cop.*, on the lines of Lumps fort, close to the sea-shore; there are no trees of any kind within a mile, and not thirty fir-trees altogether in this part of the island. *Liosomus ovatulus* occurs near Lumps fort in July, and a smaller species, perhaps distinct, is found further inland. *Orthochætes setiger;* on *Senecio Jacobæa, in cop.*, in April, and to be found abundantly in autumn and winter among the dead leaves of that plant, in sandy places at Hayling, near the ferry. *Cœnopsis Waltoni;* rare, Salterns. *Tanymecus palliatus;* abundant on thistles, in June and July, Southsea beach. *Sitones Waterhousei*, rare, Southsea beach. *Brachytarsus scabrosus;* one, dug out of a dead *furze* branch. *Bruchus loti;* from *Vicia cracca* and *Helianthemum vulgare*, Portsdown, June—August. *B. villosus;* from *Sarothamnus scoparius*, July and August. *Hylurgus pilosus*; Hill-head, Gosport. *Stenostola ferrea;* from hazel, Southwick, June. *Gracilia pygmæa;* bred abundantly from black-thorn and bramble. *Donacia thalassina;* abundant in June, Canal. *Crioceris asparagi;* one on Southsea beach. *Chrysomela göttingensis;* scarce, Portsdown hill, on bed-straw. *C. hæmoptera;* by thousands, on short grass, Cumberland fort, October. *Thyamis dorsalis;* very abundant on rag-wort, Lumps pond. *T. absinthii*; abundant on wormwood, June. *T. verbasci*, var. *thapsi*; Portsdown, from *Verbascum*. *T. agilis*, Rye; from *Mentha aquatica*. *Psylliodes marcida*; abundant on Southsea beach, spring and summer, in old cabbage stumps. *Lycoperdina bovistæ*; bred from puff-ball at Southwick, in August. *Phaleria cadaverina*; plentiful under sea-weed, Southsea beach, June. *Scaphidema ænea*; under whitethorn bark. *Helops cæruleus*; old posts round the fortifications, out in June. *Ischnomera melanura*; very abundant in old stakes on the beach, near Cumberland fort. *Lytta vesicatoria*; one taken at Portsdown hill, last May. *Homalota imbecilla*; in great abundance in pond refuse, Lumps, April and May. *Philonthus varius*, var. *bimaculatus*; walls round Portsmouth, not in company with type form. *P. cicatricosus*; under stones and seaweed, Southsea beach, June to October, very rare. *Bledius spectabilis*; Lumps pond. *Corylophus sublævipennis*; one specimen, on the Common.—H. Moncreaff, 9, Wish Street, Southsea, *November*, 1870.

Captures of Coleoptera near Maidstone.—During the past season (since May 7th) I have taken the following species, amongst others of more general distribution, in this neighbourhood; indeed, I think all were found within a radius of two miles from my house, which will include a district of both chalk and sand, wood and marsh.

Dromius 4-signatus, *Badister humeralis*, *Calathus flavipes* and *C. fuscus; Bembidium bistriatum*, *B. obliquum*, *B. lampros*, var. *velox*, Er., *B. Sturmii* and *B. 4-pustulatum* (already recorded in the present vol.); *Haliplus elevatus*, abundant in running water with *Emis Volkmari; Aleochara cuniculorum*, *Quedius cruentus*, black var. with red suture, *Q. peltatus*, *Philonthus albipes*, *P. umbratilis* and *P. quisquiliarius*, var. *rubidus; Stilicus geniculatus* and *S. orbiculatus; Stenus incrassatus*, *S. plantaris*, and *S. picipennis; Habrocerus*, *Deleaster dichröus*, *Homalium striatum*, *Eusphalerum triviale*, *Mycetoporus lucidus*, *Bledius subterraneus*, and *B. longulus; Colon serripes*, *Hydnobius strigosus*, *Cyrtusa minuta*, *Colenis dentipes*, *Saprinus virescens*, *Cercus pedicularius*, abundant on *Spiræa*, *Brachypterus gravidus* on *Linaria*, *Læmophlœus bimaculatus* and *L. duplicatus*, *Litargus*, *Oömorphus*, *Heterocerus marginatus* and *H. lævigatus*, *Parnus auriculatus*, *Rhagonycha unicolor*, *Clerus formicarius*, *Dryophilus anobioides*, *Mordella fasciata* (local, on *Umbelliferæ*, July, and flying in the hot sun), *Mordellistena abdominalis*, *M. humeralis*, and *M. brevicauda*.—Henry S. Gorham, Bearsted, *November* 12*th*, 1870.

Notes on Meligethes.—The undermentioned species of *Meligethes* (besides the universal *M. rufipes*, *æneus*, *viridescens* and *picipes*) have come under my notice at Bearsted, as occurring on the flowers named. *M. lumbaris*, on roses in my garden; *M. seniculus*, in the utmost profusion on *Cynoglossum* and *Echium; M. flavipes*, low plants; *M. lugubris*, plant not observed; *M. distinctus*, on *Teucrium scorodonia; M. solidus*, on *Helianthemum; M. brunneicornis*, I think on Honeysuckle.

Mr. Garneys, of Repton, tells me that *M. memnonius* occurs with him on *Caltha palustris*.—Id.

Capture of Opilus mollis and Callidium variabile at "*Sugar.*"—While sugaring for moths near Lee in July last, I was suprised to find on two or three occasions several specimens of the former and one or two of the latter beetle at my bait; and I have thought that this might interest Coleopterists, as I have never noticed a record of the capture of either of these species under similar circumstances.

In Mr. Rye's book on British Beetles, I observe that he says the larva of *Opilus mollis* lives under the bark of willows, and feeds on the larvæ of *Anobium*, *&c.* The trees on which the above occurred were old oaks, upon which trees it seems probable that these larvæ were reared.—John Fairbairn Scott, 37, Manor Park, Lee, S.E., *November*, 1860.

Descriptions of two species of Hemiptera new to the British lists, and notice of a third.—

Plociomerus luridus, H.-Schff., Wz. Ins., 1, 4, p. 11, fig. 356.

Head dark brown. Antennæ clothed with long hairs, 1st joint brown, lighter at the apex, 2nd and 3rd reddish, suffused with brown, near their apices, 4th brown. Thorax dark red-brown, covered with a velvety pubescence, hinder angles and base lighter, very much contracted a little behind the middle, the sides, in front of the contraction, much rounded, so as to give a swollen appearance to the anterior part of the thorax, posterior angles largely rounded, base nearly straight. Scutellum dark brown, pubescent like the thorax. Elytra: clavus piceous, with three rows of dark punctures, the two inner ones uniting; corium piceous, with rows of dark punctures, covered with short, whitish hairs, suffused with dark brown near the apex; membrane dusky, nerves white. Beneath brown, covered with a silky pubescence. Legs dark testaceous, each with a wide darker band near the apex, armed with two long, and three short, teeth, the short ones placed one at each end, and one in the middle. Length, 6 millim.

I have two British specimens of this species, taken by Mr. G. R. Crotch in the New Forest.

Hadrodema pinastri, Fall., Hem., p. 112, 68.

Head and antennæ orange-yellow, the latter with a narrow ring of a slightly darker colour on their first joints, and becoming darker as they approach their apices: eyes black: forehead with a brown longitudinal vitta. Thorax not so brightly coloured as the head, callosites dark brown, sides much diverging to the posterior angles in nearly straight lines, angles and base rounded, surface largely punctured, covered with short brownish hairs: scutellum the same colour as the head, punctured. Elytra deep ochreous-yellow, darker at the apex of the corium and cuneus, punctured, covered with fine brownish hairs; membrane dusky, with a lighter spot below the cuneus. Legs orange-yellow; femora spotted with brown at the apex in the fore and middle legs, and with two narrow reddish bands on the posterior pair; tibiæ generally with two reddish bands on each; tarsi with their apical joints brown, beneath orange-yellow.

♀ lighter in colour, the callosites of the thorax scarcely marked with brown, and the elytra almost concolorous throughout. Length, 5 millim.

For the discovery of this species, which also adds a new genus to the British list, we are indebted to Dr. Power, who found it in some abundance near Weybridge. I have subsequently taken it pretty commonly in two localities near Reigate; it lives on the Scotch fir.

Salda arenicola, Scholtz.

I have recently taken several specimens of this species, which is another addition to our fauna, on the moist parts of the cliffs to the east of Bournemouth. I do not describe it, as I understand Messrs. Douglas and Scott have already a description drawn out from a single specimen obtained elsewhere, and which I hope will soon be published.—Edward Saunders, Hillfield, Reigate, 10*th November*, 1870.

Capture of Lamproplax Sharpi, D. & S. (? Megalonotus piceus, Flor), in the south of England.—In a marshy place near Wimbledon, when hunting for *Coleoptera* at the end of last September, I captured a specimen of a Drymoid bug, the facies of which was quite unknown to me. This insect my friend Mr. Scott tells me is *Lamproplax Sharpi*, hitherto only recorded from Dumfries-shire, where three specimens of it were taken by the gentleman after whom it was named.—E. C. Rye, 10, Lower Park Fields, Putney, *November*, 1870.

Stenocephalus agilis in South Wales.—I went out last Thursday, the 13th inst., to look for *Hemiptera* for the first time, and had the pleasure of finding *Stenocephalus agilis* so common at the roots of mat-grass on the sand-hills here, that I captured over a dozen in half-an-hour: it seemed to be more attached to the grass than to spurge, as it was scarce at roots of the latter; I also took one *Therapha hyoscyami* and some common *Hemiptera*, but I looked in vain for *S. neglectus*. I shall be glad to give *S. agilis* to any collector of *Hemiptera* who may want it.—Edwin Roper Curzon, Shortlands, Newton Bridgend, *August* 15*th*, 1870.

Andricus inflator, Hartig, occurring in Britain.—Of the Cynipideous genus *Andricus*, the Rev. T. A. Marshall has described three British species in Vol. iv of this Magazine (p. 101, 102), namely, *A. trilineatus, noduli*, and *moniliatus*, to which I have added a fourth, *A. curvator* (ante p. 39). In reference to the last, my friend Mr. Kidd desires me to state, that he does not wish to designate its gall as "kidney-shaped," but simply as the "kidney-gall," and I feel certain nobody will object to this simplifying of the term.

A fifth species, which I can now confidently record as British, is *Andricus inflator*, Hartig, the gall of which has been figured by Malpighi, in his "Opera omnia," tab. 12, fig. 40, i. and n., whilst Hartig has described the imago in "Germar's Zeitschrift," Vol. ii, p. 191, as follows:—"*A. inflator:* niger; antennis

"pedibusque pallidis, coxis posticis basi nigris; abdomine lateribus rufo. Capite "thoraceque coriaceis, scutello rotundato exarato, abdomine valde compresso, segmento primo longitudine vix dimidii abdominis; vaginæ elongatæ. Long. lin. 1."

An isolated stunted oak-bush, overshadowed by some firs and growing near the top of Shirley-heath, afforded to me, about a fortnight ago, a series of the very characteristic cauline gall of this species. The production consists of a club-shaped swelling of the terminal shoot. The leading bud is completely destroyed, and in its place there appears a central burrow, open at the top, and about three lines in depth, at the bottom of which cavity the small egg-shaped, brown, monothalamous gall is found, imbedded in the wood. It is a matter of pathological interest to observe how effectually the disposition of the Cynipideous egg in the exact spot where the terminal bud ought to have appeared, does, so to say, cork up the starting power of that part, and how the diverted rising sap, though showing vital action in lateral buds on the outer sides of the club, never closes up the central straight funnel, which is the only means of exit for the *Andricus*, after piercing the dome-shaped top of its oviform cell.—Albert Müller, South Norwood, S.E., *November 7th*, 1870.

Deilephila galii and livornica near Plymouth.—Mr. John Purdue, who resides in the neighbourhood of Plymouth, has kindly informed me that during the past season he captured one specimen of *galii*, and six of *livornica*, hovering over flowers of *Petunia* and *Verbena*.—J. Hellins, Exeter, 11*th November*, 1870.

Eupithecia togata in Perthshire.—A short time ago Mr. Wilson, of Woolwich, brought me to name a few *Lepidoptera* collected during the first half of July on Lord Kinnoull's Estate, in Perthshire; among other species I noticed a series of *Eupithecia togata*. He informed me that he obtained them in a plantation of fir, by beating the lichen which grew on the trees in great luxuriance. I think the occurrence of this rare "pug" in that locality deserves recording.—A. H. Jones, Eltham, *October*, 1870.

Luperina cespitis at Eltham.—On the 20th September I discovered on a gas-lamp in Eltham a fine example of *Luperina cespitis*. I believe it is somewhat unusual for this species to occur so near the metropolis.—Id.

Eupithecia consignata and other Lepidoptera at Norwich.—On May 26th last, I had the pleasure for the first time of capturing a specimen of *Eupithecia consignata*. It was sitting quietly on a gas-lamp, and served in some degree to console me for my disappointment in not again taking *Hydrilla palustris*, for which I worked night after night. Two nights later, while on the same quest, *Cucullia chamomillæ* turned up, quite new to this neighbourhood I believe.

Later in the season I found a specimen of *Acidalia rubricata* in another lamp, in which it had inconsiderately burnt its wings. This little beauty has also been taken at a lamp about a mile from this spot, and a very dark variety of it on a heath about eight miles away. It therefore appears to be widely distributed on this side of the country.—Chas. G. Barrett, Norwich, 13*th October*, 1870.

Notes on the habits and food-plant of Eupœcilia Degreyana.—One night last May I was examining the gas-lamps in the outskirts of the city with much care and little success, when a narrow-looking little *Tortrix*, upon one of them, attracted my attention. Of course it was soon secured (though not without "swarming"), and as, by the uncertain glimpse which I obtained, it appeared to be *Eupœcilia ciliella*, I was very well pleased to find two more at the next lamp. When, however, they came to be pinned, I found, to my surprise and delight, that instead of *ciliella* I had secured *Eupœcilia Degreyana*.

As will readily be supposed, the first opportunity that occurred, took me to the favoured spot to search for the haunt of the species. On one side of the road were market gardens—unpromising localities,—on the other, gentlemen's houses and shrubberies, but just by the two lamps was a small piece of rough grass land, which seemed to have been formerly in cultivation, and still grew as much of weeds as grass. Here then was the only hope; so, getting leave from the proprietor, I went to work, and before very long secured my first specimen of the insect I had come to seek. It was, however, very scarce, and required long and careful working for, and it was some hours before I had secured a decent series. This was at last facilitated by the approach of dusk, when the *Eupœciliæ* fly. Earlier in the day they often prefer being walked over.

At the same time I feel sure that I discovered its food-plant, for every specimen was among *Plantago lanceolata*, and would settle on nothing else. The favourite perch was *across* a flower-stalk, but sometimes they settled on the seed-head. Taking into account the usual habit of the larvæ of the genus, I feel no doubt that, in this species, it feeds in the seed-head of this plant. It must be confessed, however, that I have several times searched for the larva without success. On June 4th, I paid the place another visit, but *Degreyana* was worn and nearly over.

A month later—July 6th—I chanced to be examining a rough sloping piece of ground at the side of a chalk pit, which was covered with *Plantago lanceolata*, when a lovely *Degreyana* started up; this led to a search and the capture of four more, all beautifully fine, and in the course of the next few days I took a tolerable number of specimens, all among the same plant. On the 14th a specimen occurred two or three miles the other side of the city, and on the 18th, a most brilliant and lovely female at a gas-lamp in a fourth locality. On the 20th at the chalk pit they were getting quite worn out.

However, on August 23rd, a fine specimen again turned up at one of the first-named gas-lamps, although the field had been mowed in the summer, and much of the food-plant made into (very poor) hay. This time other matters interfered, and I could not work for it, but I feel convinced that *Degreyana*, like *atricapitana*, *Heydeniana*, and probably some other species, has three broods in a season—end of May, July, and end of August,—and that it is widely distributed over this part of the country, appearing and disappearing as the plantain gets the upper hand, or becomes killed out by the grass.

The capture of a good many specimens, and of different broods, is satisfactory, establishing as it does so thoroughly the distinctness of this species. Although varying from pale rosy-grey to a colour as brilliant as the brightest *roseana*, it never loses its distinctness, nor merges in the least into *ciliella*.—Id.

Note on Depressaria granulosella.—I had the good fortune in the autumn of 1869, to find the neat little *Depressaria granulosella* rather commonly in a lane near here. The bank on one side of this lane was covered in the spring with *Anthriscus vulgaris*, and on this plant I expected in due time to find the larva. Accordingly, on June 17th, I went to search for it, but found that the intense heat had already withered every plant, except one, which chanced to be sheltered by some nettles. On this plant I found two or three larvæ, each inhabiting a terminal leaflet which had been drawn together into a tube. If I recollect right, these larvæ were greenish, but they spun up almost immediately, before I could send them to Mr. Stainton, and early in July produced *granulosella* as I expected. Shortly afterwards the moth was again to be found in the lane, and came rather freely to sugar.—Id.

Notes on Nothris verbascella.—In a notice last year of the habits of *Nothris verbascella* (E.M.M., Vol. vi, pp. 163-4) I stated that the young larvæ from eggs laid in July and August feed through the winter and spring, but I now find this is not the invariable rule. On September 8th I noticed a large plant of *Verbascum pulverulentum* of which the heart was almost entirely destroyed; and, on examination, found not only well-grown larvæ, but also a number of pupæ in and under the plant, from which the perfect insects emerged from 11th September till the end of the month.

I have since found two or three other plants similarly injured, so that there is evidently a partial second brood, and it may be that the eggs of this brood furnish the *late* larvæ in the spring, while it is reasonable to suppose that this second brood is produced from eggs of moths developed early in the summer. The second brood moths are not nearly so large as the first.—Id.

Note on the food-plant of Homœosoma saxicola, Vaughan.—In the reference to this species at p. 132 of the present Vol., the name *Anthemis* was inserted by the Editors after the food-plant "chamomile;" but I purposely omitted the Latin botanical name, not being sure whether the plant was *Anthemis* or *Matricaria.*—Howard Vaughan, Gaisford Street, Kentish Town.

Description of the larva and habits of Crambus fuscelinellus (Pedriolellus).—Thanks to Mr. Charles G. Barrett's researches at the Yarmouth denes, and his kindness in supplying me on the 11th of last June with several examples of the larvæ, and subsequently with their curiously constructed cases and cocoons containing pupæ, I am able to offer the following account of this species.

The larva is from five-eighths to three-quarters of an inch in length, moderately stout and cylindrical, but tapering a little just towards the hinder extremity; all the segments plump and well defined.

The ground colour is a delicate pearly shining grey, the front of each segment broadly banded with darker grey, which melts into the pale ground colour near the spiracles; the fold of skin at the segmental divisions is whitish. The head is shining brown, the mouth dark brown; on the second segment is a brown and polished semi-circular plate margined behind with darker brown, and bisected by a central dividing line of the grey ground colour; a slight indication of this dorsal line appears on the middle of each segment from the fifth to the twelfth: a striking feature is shown in the ornamentation of the tubercular spots, which are blackish-brown and most conspicuous, those on the third and fourth being paler than the rest; on these segments, also, the dorsal tubercles are elongated transversely, and those on the sides are of a drop shape, as seen in some species of the *Hepiali;* on the other segments the tubercles on the back are large in proportion to the size of the larva, especially the front pairs, which are thick and transversely oblong, something like rather short bricks in shape, and only separated by the before-mentioned dorsal line; the hinder pairs are equally long transversely, but so thin as to be almost linear; beneath the oblong pairs of spots there comes on the side a row of circular spots one on each segment; and below these again are situated the minute black spiracles with an equally small black dot behind each; a small brownish plate is on the anal tip; the legs and prolegs are pale grey, these last tipped with brown; a fine short pale brown hair proceeds from each of the spots. Like several other larvæ that dwell in sand, they become, as they mature, of an ochreous tint in the ground colour, though their spots remain the same as before.

The tubular residence of agglutinated particles of sand constructed by this active larva is, as Mr. Barrett has previously informed us, four or five inches in length, though it varies in this respect according to the growth of the larva, which does not appear ever to leave its abode, but to lengthen it in front, while it moves on in quest of fresh food, so that the bitten-off stem of the plant on which it feeds appears to grow from the mouth of the tube: the hinder end of this is densely packed with frass of a whity-brownish or greenish colour, and evidently composed of small bits of grass stems scarcely altered by any digestive process.

The larvæ I had in confinement within a pot of sand, furnished with a growing plant of their native food, *Triticum junceum*, did not, after being turned out of their cases for inspection, spin any new ones, nor did they re-enter their previous abodes, but wandered about and spun a great quantity of useless web along the sides of the pot at the edge of the sand, and joined some of their deserted tubes together into a tangled mass, and finally contrived to gnaw a hole in their covering of new stiff muslin, and thus escaped.

The cocoon spun by the full-fed larva, and in which it completes its change to the pupa, is attached to the former opening of its previous residence at right angles, and in a perpendicular position; it varies in length from one to two inches, probably in proportion to the depth of the tube in the shifting sand, though one inch and a half is the average length; cylindrical, thick as a goose-quill at the top, and a little larger at the bottom, with both ends rounded; the point of junction with its former abode is nearly midway, but nearer the top than the bottom; its exterior composed of sand similarly to the tubes, but the well lined interior is much firmer, and is beautifully smooth with white silk, very tough and strong.

The pupa is from five to six lines in length, very pale shining brown in colour, and quite of an ordinary slender form, only the wing covers are seen to be very long in proportion to its size.—Wm. Buckler, Emsworth, *October 5th*, 1870.

Captures, &c., of Lepidoptera near York.—The following species have been captured or bred by me from 1868 to 1870. A variety of *Amphidasis betularia* ♂, in May, 1868, with the upper-wings entirely black and the under-wings broadly bordered with black. *Colliæ sparsata;* I captured a few spcimens in 1868, and also a larva from which I bred a fine specimen in June, 1869. *Lycæna Alexis;* a hermaphrodite example fell to my lot in 1868; right side female, left male, the latter being the larger. *Eremobia ochroleuca;* in 1869 on flowers of *Senecio Jacobœa. Cirrhœdia xerampelina;* twelve larvæ this spring from bark of ash-trees. *Eupithecia fraxinata;* pupæ. *Cucullia chamomillæ;* one specimen, in April, 1870. *Eupithecia subnotata;* one specimen this year.—THOMAS WILSON, Holgate, York, *October* 18*th*, 1870.

Captures of Lepidoptera near Bury St. Edmunds.—Some days after the trip to Ranworth recorded by Mr. Barrett, at p. 111, I went over to Teddenham, near Bury St. Edmunds, and had good success, as the following account will show.

Having arrived on the evening of Tuesday, August 2nd, I went on the heath and low ground. The first insect I saw was *Spilodes sticticalis*, in a turnip field. On reaching a small bog on the heath I found *Lycæna Ægon* and *Zygæna trifolii* sitting on the rushes. As it began to get dark, *Nonagria despecta* flew in plenty in the marshy ground beyond, with here and there specimens of *Acidalia immutata.* At sugar I took sundry *Agrotis tritici, valligera* and *puta*, and *Cerigo Cytheræa* in plenty, one *Agrotis* seemed to me to be *obelisca*, but perhaps it was only a variety of *tritici.* On my return to the inn, I took a moth close to the village which proved to be *Chesias obliquaria*,—the first I had ever seen alive.

Next morning I went to look for larvæ of *Dianthœcia irregularis*, and, sure enough, I took them in great numbers, on *Silene otites*, the Spanish Catch-fly; but unfortunately nine out of ten, or nearly so, proved to have been ichneumoned. I sent larvæ to five or six well-known Entomologists, but I find that not more than one or two succeeded in getting even one larva to go down; all, or nearly all, that I sent having been stung. I trust, however, that some of us may be able to rear it. I also took a few larvæ of *Lithostege griseata* on *Sisymbrium sophia:* earlier in the season it would have been common. I also took a few more *Agrophila sulphuralis*, one *Acontia luctuosa*, two *Aspilates citraria*, and a beautiful dark, yet bright, red specimen of *Acidalia rubricata* ♀, which laid some eggs, the larvæ from which promise to do well under the care of Mrs. Hutchinson, to whom I sent them. I also swept up single larvæ of *Anticlea sinuata* and *Hecatera serena*, which were kindly determined for me by Mr. Buckler.—E. N. BLOOMFIELD, Guestling Rectory, *October* 15*th*, 1870.

A fact!—A reverend acquaintance of mine, who dabbles in moth-catching, has confided to me his belief that the little "silver-fish" (*Lepisma*) is *the larva of Alucita polydactyla*, and its food is the paper on the walls of his bed-room! The "fish" swarm on his walls—the moths swarm in his windows: the connection is clear, and I have had to give in, beaten by my friend's invincible—stupidity. J. HELLINS, Exeter, 24*th October*, 1870.

PROCEEDINGS OF THE HAGGERSTON ENTOMOLOGICAL SOCIETY.—Mr. E. BARLOW, President, in the Chair.

1870. *August 4th.*—Mr. E. G. Meek exhibited specimens of *Lythria purpuraria* bred by Mr. Button of Gravesend, also specimens of *Scoparia Zelleri, Dicrorampha flavidorsana, Acidalia emutaria*, and *Herminia derivalis.* Mr. Elisha exhibited living larvæ of *Pericallia syringaria*, and examples of *Scoparia Zelleri*, captured at Box Hill. Mr. T. Eedle exhibited specimens of *Dasydia obfuscata, Emmelesia blandiata, Coremia munitata, Erebia Cassiope*, &c. Mr. Clark exhibited several varieties of *Arctia caja.*

August 11*th.*—Mr. Bartlett brought for exhibition a variety of *Boarmia repandata*, together with specimens of *Catocala promissa* and *Catocala sponsa*. Mr. A. Harper exhibited a variety of *Liparis monacha*. Mr. Boden exhibited a very dark specimen of *Setina irrorella* and *Lithosia complana*.

August 18*th.* — Mr. E. G. Meek exhibited *Pempelia obductella*, captured by Mr. Button of Gravesend, *Acidalia osseata*, and a variety of *Argynnis Adippe*, the usual silver spots on the under-side of the hind-wings being absent. Mr. Moore exhibited an example of *Deilephila galii*, captured at Stamford Hill.

August 25*th.*—Mr. Bartlett brought specimens of *Phycis abietella* for exhibition. Mr. E. G. Meek produced some larvæ of *Scardia choragella* feeding in a species of fungus. Mr. T. Eedle exhibited specimens of *Fidonia pinetaria*. Mr. Elisha exhibited a series of fine bred specimens of *Pericallia syringaria*. Mr. Bryant exhibited *Emmelesia unifasciata* and *Nonagria elymi*.

During the month 91 members attended the meetings, and one fresh member was elected.

September 1*st.*—Messrs. Frederick Moore and Hoey were elected members. Mr. Boden exhibited fine specimens of *Angerona prunaria*, also a variety of the same species. Mr. Elisha exhibited a very dark variety of *Tephrosia crepuscularia*. Mr. Eedle, Jun., exhibited some beautiful varieties of *Pædisca ophthalmicana*, *Melanthia rubiginata*, *Lobophora lobulata*, and *Hypsipetes elutata*, to the notice of the members. Mr. Hoey exhibited a life-like preserved larva of *Stauropus fagi*.

September 8*th.*—Messrs. Lepelley and Rochfort were elected members. Mr. Elisha exhibited bred specimens of *Sesia chrysidiformis*. Mr. T. Eedle showed the specimen of *Pachnobia alpina* captured by him near the summit of a high mountain in Scotland this season, it being the third known British specimen; he also exhibited beautiful varieties of *Xylophasia polyodon*, *Cidaria immanata* and *Larentia ruficinctata*. Mr. Harper exhibited varieties of *Arctia villica*. Mr. Lormier exhibited the preserved larvæ of *Emphyra porata*, *Acronycta psi*, *Hadena pisi*, *Dianthœcia conspersa*, *Zenzera æsculi*, and *Acronycta aceris*.

September 15*th.*—Messrs. Franklin and Paulini were elected members. Mr. T. Eedle exhibited specimens of *Eupœcilia sub-roseana*, *Penthina prælogana*, *Peronea caledoniana*, *Coccyx vacciniana*, and *Euchromia arbutana*. Mr. E. G. Meek exhibited a specimen of *Dianthœcia irregularis* bred by the Rev. W. H. Wratislaw, *Polia nigrocincta* and *Epunda nigra* bred from larvæ collected by him (Mr. Meek) in the Isle of Man, also varieties of *Cirrhædia xerampelina* captured in the same island by Mr. Warrington, together with specimens of *Pieris Daplidice* and *Lycæna Acis* taken by Mr. Button of Gravesend. Mr. Bryant exhibited specimens of *Agrotis agathina*.

September 22*nd.*—Mr. Elisha exhibited examples of *Catocala sponsa*. Mr. T. Eedle exhibited specimens of *Eupithecia consignata* and *Thera juniperata*, bred by him from larvæ found feeding on juniper very high up on one of the mountains in Scotland. Mr. Raine exhibited specimens of the preserved larvæ of *Abraxas ulmata*. Mr. Lormier exhibited specimens of the preserved larvæ of *Orgyia pudibunda* and *Notodonta camelina*. Mr. J. A. Clark exhibited a variety of *Polyommatus phlæas*, one of the under-wings being whitish.

September 29th.— Mr. Elisha exhibited specimens of *Ptilophora plumigera*, *Notodonta cucullina*, *Ennomos erosaria*, and *Herminia derivalis*. Mr. E. G. Meek exhibited a very dark specimen of *Epunda lichenea* from the Isle of Man, also a *Nola* which he thought might probably prove to be a new species, the specimen in question having been captured by Mr. Button. Mr. J. Moore exhibited a fine variety of *Lycæna Adonis*. Mr. Healy brought for exhibition the imago, larva, and cocoon of *Camponiscus Healæi*, a rare species of *Tenthredo* that he had been very successful in rearing this season.

The attendance of members at the meetings during this month amounted to 121.

Entomological Society of London, *7th November*, 1870, H. W. Bates, Esq., Vice-President, in the Chair,

T. H. Briggs, Esq., was elected a Member.

Mr. McLachlan exhibited, on behalf of Mr. Buckler, coloured figures of larvæ of *Deilephila galii*, sixteen of which had been taken, relating to varieties and differences of age. Also one figure of the larva of *D. livornica*.

Mr. Bond exhibited two examples of *Nonagria brevilinea*, Fenn (see E.M.M. vol. i, p. 107), of which a dozen examples had been taken at Horning Fen, by Mr. King. Also a ♂ *Caradrina cubicularis in cop.* with a ♀ *Senta ulvæ*.

Several communications were made respecting the extreme abundance this autumn of *Chlorops lineata*.

Mr. E. Saunders exhibited a specimen of *Macrotoma heros*, Dohrn, from the Fiji Islands, being probably the largest known beetle. Mr. Bates said it was not a *Macrotoma*, but belonged to the genus *Xixuthrus* of Thomson.

Mr. F. Smith referred to his exhibition, 1st November, 1869, of *Melöe rugosus*. He had again taken 25 specimens near Prittlewell. They were of very retired habits and never came into the daylight. Two females were placed in a flower-pot with earth, for the purpose of obtaining eggs if possible; but they burrowed into the earth and there remained, causing him to think that they naturally hybernated, and did not lay their eggs till the spring.

Mr. Pascoe mentioned that he had once seen near Narbonne several examples of *Melöe maialis* impaled upon the thorns of *Opuntia*, in such a state as to render it impossible that they could have been placed there by birds.

Mr. Howard Vaughan exhibited the new species of *Phycidæ* described by him at p. 130 of the present Vol.; also the true *Acidalia ochrata*, *Leucania albipuncta*, &c.

Mr. Albert Müller exhibited galls of *Cynips renum* of Hartig, on the underside of oak-leaves from Shirley; also those of *Cynips agama*—pea-shaped, and on oak.

Mr. Dunning exhibited *Anobium paniceum* feeding upon Cayenne pepper: also a collection of *Lepidoptera* from the Snowy Valley near Shanghai, captured by Mr. Holdsworth.

The following papers were read:—"On Butterflies collected in Basuto-land by Mr. Bowker," by Mr. Trimen: "Contributions to an insect-fauna of the Amazon Valley (*Cerambycidæ*, concluded)," by Mr. H. W. Bates: "Descriptions of new genera and species of Australian *Curculionidæ*," by Mr. Pascoe: "Notes on *Eurytominæ*," by Mr. Walker.

REMARKS ON THE GENUS *GELECHIA*, AS SUB-DIVIDED BY VON HEINEMANN, IN HIS "SCHMETTERLINGE DEUTSCHLANDS UND DER SCHWEIZ," ZWEITE ABTHEILUNG; BAND II, HEFT. I.

BY H. T. STAINTON, F.R.S.

Of late years, most Micro-Lepidopterists have felt uneasy at the growing unwieldiness of the genus *Gelechia*, and have been prepared to welcome eagerly any feasible plan of dividing it into genera of more moderate extent. A genus of from two hundred to three hundred (European) species, occupying five or six drawers of a cabinet, becomes a nuisance, as one feels that were the species arranged *alphabetically*, they would be more easily found both in books and in the cabinet.

It was known that Herr von Heinemann was preparing, in his forthcoming volume on the *Tineina* of Germany and Switzerland, to break up, to a considerable extent, the genus *Gelechia*. The experiment had been tried by Herrich-Schäffer, in his fifth volume of his "Schmetterlinge von Europa," wherein he has separated a number of the species under the generic name of *Anacampsis*, and removed two others to form his genus *Recurvaria*.

Von Heinemann has gone far further than this, for he divides our old genus *Gelechia* into no less than twenty-five genera. Fourteen of these genera, it is true, consist only of one, two, or at the most three species, and but six of the genera are more comprehensive, varying, in their capacity, from thirteen to sixty-two species; and hence, if the divisions he has here indicated can really be maintained, a great step will have been gained in our study of these insects.

The characters on which he has relied, when forming these genera, have been "the ocelli, the ramifications of veins 6—9 of the anterior wings, the point of origin of vein three of the posterior wings, the form of the wings, the length of the cilia, and the differences of the palpi;" and he says that he "believes that some of these genera rest on stable foundations, whereas others he does not fail to perceive shade insensibly one into the other."

I quote the characters of the twenty-five genera given by Herr von Heinemann, enumerating under each genus the British and German species. The British species which have not been detected in Germany will be indicated by an asterisk.

GELECHIA (p. 193).

Middle joint of the palpi beneath with standing-out scales, with a longitudinal furrow, terminal joint thin and pointed.

Maxillary palpi very small.

Anterior wings narrow, posteriorly narrowed from the inner margin, with twelve (rarely eleven) ribs, only veins seven and eight are stalked or coincide.

Posterior wings broader, or as broad as the anterior wings, slightly indented before the apex, the middle cell closed, veins three and four from the same spot length of the cilia less than the breadth of the posterior wings.

The twenty-four British species referable to this genus are—

Vilella,
Pinguinella,
Nigra,
Muscosella,
Cuneatella,
Rhombella,
Hippophaëlla,
*Celerella,
Distinctella,
Sororculella,
Velocella,
Peliella,
Ericetella,
Lentiginosella,
Mulinella,
*Divisella,
*Fumatella,
Malvella,
Galbanella,
Boreella,
Solutella,
Longicornis,
Diffinis,
Scalella.

The additional species occurring in Germany or Switzerland are forty-one in number—

Reuttiella,
Basiguttella,
Albicans,
Tragicella,
Tephriditella,
Incomptella,
Spurcella,
Suspectella,
Holosericella,
Præclarella,
Striolatella,
Albifaciella,
Nigricans,
Oppletella,
Conspurcatella,
Confusella,
Scotinella,
Flavicomella,
Decolorella,
Ignorantella,
Infernalis,
Interruptella,
Petasitæ,
Lutilabrella,
Angustella,
Cognatella,
Nebulosella,
Continuella,
Perpetuella,
Interalbicella,
Elatella,
Albifemorella,
Melaleucella,
Rosalbella,
Electella,
Lugubrella,
Viduella,
Luctuella,
Quadrella,
Maculatella,
Cytisella.

BRACHMIA (p. 230).

Middle joint of the palpi thickened by appressed scales, terminal joint shorter, thick, filiform, pointed.

With ocelli

Anterior wings narrow, long-pointed, with twelve ribs, veins seven and eight springing one after the other out of vein six.

Posterior wings as broad as the anterior wings, at the hind margin flatly rounded with sharply protruding apex and long cilia, the middle cell closed, veins six and seven on a long stalk, three and four from the same spot.

This genus contains only one British species—

Mouffetella.

Four other German species are given in Von Heinemann's work—

Pruinosella,
Triatomea,
Nigricostella,
Petiginella.

BRYOTROPHA (p. 233).

Palpi strongly recurved, middle joint with smooth scales, beneath much expanded, with a longitudinal furrow, terminal joint longer, pointed.

With ocelli.

Anterior wings narrow, posteriorly long pointed, with twelve ribs, veins seven and eight on one stalk, running into the costa.

Posterior wings as broad as the anterior wings, far beyond the middle with the hind margin much rounded or broken, produced into a long and sharp (rarely short) apex, the middle cell closed, veins six and seven on one stalk, veins three and four from the same point, cilia as long as the posterior wings are broad.

This comprises nine British species—

Terrella,
*Politella,
Desertella,
Senectella,
Mundella,
Affinis,
Umbrosella,
Domestica,
Basaltinella,

and nine additional in Germany or Switzerland—

Latella,
Alpicolella,
Decrepitella,
Lutescens
Plebejella,
Glabrella,
Minorella,
Tectella,
Cinerosella.

The notion is that all the larvæ of this genus are moss-feeders.

Lita (p. 244).

Palpi slightly recurved, middle joint beneath with standing-out and loose scales, with a longitudinal furrow, terminal joint thin and pointed.

With ocelli.

Anterior wings narrow, posteriorly long-pointed, with twelve ribs, veins seven and eight on one stalk.

Posterior wings as broad as the anterior wings, beyond the middle with the hind margin rounded or broken, produced in a sharp apex, the middle cell closed, veins three and four from the same spot, the cilia longer than the breadth of the posterior wings.

This comprises nineteen British species—

Artemisiella,
Atriplicella,
Instabilella,
*Ocellatella,
Obsoletella,
Acuminatella,
Æthiops,
*Costella,
Hübneri,
Knaggsiella,
Maculea,
Tricolorella,
*Fraternella,
*Viscariella,
Maculiferella,
Junctella,
Marmorea,
Vicinella,
Leucomelanella.

and thirty-three additional German or Swiss species—

Strelitziella,
Inustella,
Psilella,
Diffluella,
Horticolella,
Tussilaginella,
Insulella,
Diminutella,
Pallidella,
Porcella,
Trochilella,
Murinella,
Rancidella,
Chrysanthemella,
Halonella,
Pauperella,
Melanella,
Nigripalpella,
Pygmæella,
Ingloriella,
Brahmiella,
Moritzella,
Laceratella,
Albifrontella,
Alsinella,
Tristella,
Kiningerella,
Fischerella,
Cauligenella,
Saginella,
Tischeriella,
Sestertiella,
Trauniella.

Teleia (p. 272).

Palpi slightly recurved, middle joint beneath expanded by thick, flatly pressed scales, terminal joint thin and pointed.

No ocelli.

Anterior wings posteriorly long pointed, with twelve ribs, veins seven and eight on one stalk.

Posterior wings trapezoidal, indented before the apex, veins, three and 4 from the same spot, cilia longer than the breadth of the posterior wings.

This contains ten British species—

Vulgella,
Scriptella,
Sequax,
Fugitivella,
Humeralis,
Proximella,
Notatella,
Triparella,
Luculella,
Dodecella,

and three additional German species

Alburnella,
Fugacella,
Myricariella.

Recurvaria (p. 279).

Palpi recurved, middle joint thickened beneath with quite thick scales, with no longitudinal furrow, terminal joint shorter, thin and pointed.

No ocelli.

Anterior wings narrow, with twelve ribs, veins seven and eight springing one after the other out of vein 6.

Posterior wings as broad as the anterior wings, beyond the middle rounded, with produced apex, veins six and seven remote at their origin, cilia nearly twice as long as the breadth of the posterior wings.

This genus contains only three species—

Leucatella,† Nanella, *Lathyrella.

POECILIA (p. 281).

Palpi slightly recurved, thin, middle joint beneath with slightly standing-out scales, with no furrow, terminal joint shorter, filiform.

Anterior wings posteriorly short-pointed, with less than twelve ribs, veins seven and eight on one stalk, the middle cell open.

Posterior wings not as broad as the anterior wings, posteriorly obliquely truncate, with narrow long-produced apex, the middle cell open, cilia more than twice as long as the posterior wings are broad.

This contains only two British species—

Albiceps and Gemmella.

One other, *Nigrinotella*, occurs in Germany.

ARGYRITIS (p. 283).

Palpi slightly recurved, middle joint at the end loosely scaled, with a longitudinal furrow, terminal joint of the same length.

Ocelli small.

Anterior wings narrow, posteriorly long-pointed, with twelve ribs, veins seven and eight on one stalk.

Posterior wings not as broad as the anterior wings, posteriorly obliquely truncate, with narrow far-produced apex, cilia more than three times as long as the breadth of the posterior wings.

This comprises two British species—

Pictella and *Tarquiniella.

One other, *Superbella*, occurs in Germany.

NANNODIA (p. 284).

Palpi short, slightly recurved, filiform, with appressed scales, terminal joint shorter than the middle joint.

With ocelli.

Anterior wings narrowed from the middle, with twelve ribs, veins seven and eight on one stalk, rib twelve very short.

Posterior wings not as broad as the anterior wings, oblong with a long-produced apex, no vein 6, the middle cell posteriorly open, cilia more than twice as long as the breadth of the posterior wings.

This consists only of the two species—

Stipella (*Nœviferella*) and Hermannella.

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† It seems strange that *leucatella* should be separated from *rosalbella*, which is referred to the genus *Gelechia*, and that *lathyrella* should be separated from *nigricostella*, which is referred to the genus *Brachmia*.—H. T. S.

APODIA (p. 286).

Palpi shorter, slightly recurved, filiform, middle joint with appressed scales, compressed, terminal joint shorter.

With ocelli.

Anterior wings narrowed from the middle, with twelve ribs, veins seven and eight springing one after the other out of vein six.

Posterior wings not as broad as the anterior wings, elongate trapezoidal, with long-produced apex, vein three proceeding from before the hinder angle of the cell, veins six and seven separate, cilia more than twice as long as the breadth of the posterior wings.

This contains only the single species—

Bifractella.

SITOTROGA (p. 287).

Middle joint of the palpi beneath with standing-out scales, not furrowed, terminal joint longer, aciculate.

With ocelli.

Anterior wings very long and narrow, posteriorly long-pointed, with twelve ribs, veins seven and eight springing one after the other out of vein six.

Posterior wings narrower than the anterior wings, oblong, with very long protruding apex, vein three proceeding from before the hinder angle of the middle cell, veins six and seven on one stalk, cilia more than twice as long as the breadth of the posterior wings.

This contains only the single species—

Cerealella.

PTOCHEUUSA, (p. 288).

Palpi short, slightly recurved, filiform, with appressed scales, terminal joint shorter than the middle joint, pointed.

Anterior wings narrow, posteriorly pointed, veins seven and eight springing one after the other out of vein six.

Posterior wings very narrow (narrower than the anterior wings) with long-produced apex, veins three and four from one spot, as also veins six and seven, cilia more than three times as long as the breadth of the posterior wings.

This genus comprises only three (rather discordant) species.

Subocellea, Inopella, Osseella.

ERGATIS (p. 295).

Palpi recurved, middle joint compressed, beneath with no longitudinal furrow.

With ocelli.

Anterior wings long-pointed, with twelve ribs, veins seven and eight on one stalk, cilia at the base with mealy scales.

Posterior wings nearly as broad as the anterior wings, elongate trapezoidal, with long-produced apex, veins six and seven remote at their origin, vein three proceeding from far before the hinder angle of the middle cell, cilia almost twice as long as the breadth of the posterior wings.

The genus comprises the three British species—

Brizella, Subdecurtella, Ericinella,

and also three additional German species—

Heliacella, Subericinella, Decurtella.

DORYPHORA (p. 298).

Palpi projecting, slightly recurved, middle joint with appressed scales, terminal joint shorter.

With ocelli.

Anterior wings posteriorly narrowed from both margins, with twelve ribs, veins seven and eight on one stalk, cilia hair-shaped.

Posterior wings narrower than the anterior wings, trapezoidal with long-produced apex, vein three proceeding from before the hinder angle of the middle cell, cilia longer than the breadth of the posterior wings.

†Palustrella, Lutulentella, Lucidella,
Pulveratella, Arundinetella, Suffusella,
(*Intaminatella*)

and fourteen additional German species—

Carchariella, Servella, Quaestionella, Acutangulella,
Luteella, Nomadella, Farinosae, Rumicetella,
Latiuscula, Conspersella, Sepicolella, Elongella.
Griseella, Morosa,

MONOCHROA (p. 308).

Palpi recurved, the middle joint long and thick with appressed scales, compressed, terminal joint much shorter.

With ocelli.

Anterior wings narrowed from the base on the side of the inner margin, long-pointed, with 12 ribs, veins 7 and 8 on one stalk, cilia hair-shaped.

Posterior wings narrower than the anterior wings, parallel, with long, far-produced apex, veins 6 and 7 remote at their origin, vein 3 proceeding from far before the hinder angle of the middle cell, cilia three times as long as the breadth of the posterior wings.

This comprises, according to Von Heinemann, only the single species *Tenebrella* as he follows Gartner in reputing *Tenebrosella* only the other sex of *Tenebrella*.

LAMPROTES (p. 309).

Palpi recurved, middle joint with appressed scales, compressed, terminal joint of equal length or rather longer, pointed.

Ocelli small, indistinct.

Anterior wings beyond the middle narrowed from the inner margin, long-pointed, with 12 ribs, veins 7 and 8 on one stalk, cilia hair-shaped.

Posterior wings narrower than the anterior wings, elongate-trapezoidal, with long far-produced apex, veins 6 and 7 remote at their origin, vein 3 proceeding from far before the hinder angle of the middle cell, cilia more than twice as long as the breadth of the posterior wings.

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† Though not included in Von Heinemann's work, *palustrella* occurs near Stettin.

This only contains one British species—

Atrella.

Four other species occur in Germany—

Unicolorella, Plumbella, Rhenanella, Micella.

Anacampsis (p. 311).

Palpi long and thin, strongly recurved, middle joint with appressed scales, beneath compressed, terminal joint longer, thin and pointed.

Ocelli small.

Anterior wings from beyond the middle long-pointed, with 12 ribs, veins 7 and 8 on one stalk.

Posterior wings as broad as, or narrower than, the anterior wings, trapezoidal, with long, sharp, far-produced apex, veins 3 and 4 from the hinder angle of the middle cell, veins 7 and 8 on one stalk, or from the same spot, cilia from 1½ to 3 times as long as the breadth of the posterior wings.

This comprises 10 British species.

Coronillella,
Sangiella,
Anthyllidella,
*Immaculatella,
*Nigritella,
Albipalpella,
Ligulella,
Vorticella,
Tæniolella,
*Sircomella.

Ten others occur in Germany.

Patruella,
Biguttella,
Ignobiliella,
Remissella,
Vetustella,
Azosterella,
Cincticulella,
Sarrothamnella,
Captivella,
Albifrontella.

Acanthophila (p. 320).

Palpi recurved, middle joint long, smooth, compressed, terminal joint half as long.

No ocelli.

Anterior wings parallel, far beyond the middle shortly narrowed, with 12 ribs, veins 7 and 8 on one stalk.

Posterior wings as broad as the anterior wings, beyond the middle slightly rounded, with moderately projecting broadly triangular apex, vein 3 from the hinder angle of the middle cell, cilia as long as the posterior wings are broad.

This contains only the single species—

Alacella.

Tachyptilia (p. 321).

Palpi strongly recurved, middle joint short, smooth, beneath compressed, terminal joint twice as long, thin and pointed.

With ocelli.

Anterior wings parallel, with short, moderately oblique hind margin and blunt apex, with 12 ribs, veins 7 and 8 on one stalk.

Posterior wings as broad as, or rather broader than, the anterior wings, trapezoidal, slightly indented before the roundish apex, cilia from half as long to nearly as long as the posterior wings are broad.

This comprises only the two British species—

Populella and Temerella.

Two others occur in Germany.

Scintillella and Subsequella.

BRACHYCROSSATA (p. 323).

Palpi long, strongly recurved, middle joint smooth, beneath sharp-edged, terminal joint of equal length, thin and pointed.

No ocelli.

Anterior wings posteriorly broader, with steep wavy hind-margin and rounded apex, with 12 ribs, veins 7 and 8 on one stalk.

Posterior wings half as broad again as the anterior wings, trapezoidal, slightly indented before the rounded apex, the middle cell posteriorly closed, cilia one-fourth as long as the posterior wings are broad.

This comprises only one British species—

Cinerella.

Two other species occur in the Alps—

Tripunctella and Maculosella.

The first named is about the commonest of the old genus *Gelechia* in those elevated regions.

CERATOPHORA (p. 325).

Palpi long, recurved, middle joint smooth, beneath sharp-edged, terminal joint shorter, long-pointed.

No ocelli.

Anterior wings broader posteriorly, with short, oblique hind-margin, and with 12 (rarely 11) ribs, veins 2 and 3 from the same spot.

Posterior wings broader than the anterior wings, trapezoidal, very slightly indented before the apex, the middle cell open, cilia half as long as the posterior wings are broad.

This comprises only two British species—

Inornatella and Rufescens.

Three other species occur in Germany—

Lutatella, Triannulella and Lineolella.

RHINOSIA (p. 327).

Palpi long, recurved, middle joint moderately thickened, compressed, terminal joint shorter, thin and pointed.

Maxillary palpi distinct, converging.

Ocelli concealed.

Anterior wings elongate, with distinct apex, more strongly rounded at the anal angle, with 12 ribs, veins 7 and 8 on one stem.

Posterior wings as broad as the anterior wings, of uniform breadth to beyond the middle, then narrowed, hardly indented below the apex, with 8 ribs, vein 7 proceeding from the transverse venule, cilia two-thirds as long as the posterior wings are broad.

This genus is totally unrepresented with us: it comprises five German species;

Monastricella, Sordidella, Ferrugella, Formosella.
Denisella,

CLADODES (p. 330).

Palpi recurved, middle joint with appressed scales, compressed, with no furrow beneath, terminal joint shorter.

No ocelli.

Anterior wings broader posteriorly, with steep hind-margin, veins 8 and 9 springing one after the other out of vein 7, vein 7 runs into the apex, veins 2 and 3 on one stalk

Posterior wings rather broader than the anterior wings, trapezoidal, slightly indented below the apex, the middle cell open posteriorly, cilia as long as the posterior wings are broad.

The genus only contains one British species—

Gerronella,

and one additional German species—

Dimidiella.

The two remaining genera *Gonia* and *Euteles*, neither of them represented in this country, and each consisting of a single species, form a separate section, thus characterized (p. 331).

Anterior wings with no sub-cell, veins 7 and 8 on one stem, including the apex; posterior wings slightly indented below the apex, palpi recurved, with appressed scales.

No ocelli.

Anterior wings rather broad; posterior wings nearly as broad or rather narrow, their cilia nearly as long as the posterior wings are broad.

GONIA (p. 331).

Anterior wings broad, with falciform projecting apex and steep wavy hind-margin.

The middle cell of the posterior wings closed.

The upper spur of the hind tibiæ far before the middle.

The only species is—

Pudorina,

a very handsome insect, hitherto only found in Silesia.

EUTELES (p. 333).

Anterior wings broad, slightly narrowed posteriorly, with strongly rounded anal angle and steeply curved hind-margin.

The middle cell of the posterior wings open, vein 5 wanting.

The upper spurs of the hind tibiæ behind the middle.

There is only one German species in this genus, the broad-winged, Tortriciform South European

Kollarella,

the claim of which to be included amongst the German *Lepidoptera* seems to rest on its occurrence at Fiume!

Having briefly put before the readers of this Magazine a sketch of Von Heinemann's views, I must reserve my own observations for some other opportunity.—Mountsfield, Lewisham, *October 14th*, 1870.

P.S.—With reference to the foot-note at p. 168, Herr Von Heinemann writes me that *Lathryrella* should have been referred to the genus *Brachmia*, coming next to *nigricostella;* it was through oversight that he had enumerated it among the non-German species of the genus *Recurvaria.*—H. T. S., *Dec.* 16th, 1870.

FOUR DAYS AT THE DRACHENFELS.

BY R. C. R. JORDAN, M.D.

Having a few days that could be spared from work, I thought that I would take a ramble by the Rhine, which had not been visited by me for many years; and the 10th, 11th, 12th, and 13th of June were spent at Königswinter. These days were given up entirely to entomology, and, therefore, a slight account of them may be of some interest. In 1853, I had an afternoon of insect-hunting in the wood just below the Castle of the Drachenfels, on the 24th of August: the Lepidoptera then captured were *Lycæna Dorilis* (common), *Smerinthus populi* (one larva), *Callimorpha Hera*, *Hypogymna dispar* (the males flying very actively on the wing like *Lasiocampa quercûs*), *Cosmia trapezina*, *Rivula sericealis*, *Pyrausta punicealis*, *Pterophorus pentadactylus*, *Minoa euphorbiata* (common), *Eubolia mœniaria*, *E. bipunctaria*, and *Camptogramma bilineata*.

We came to the excellent Hotel de l'Europe on the evening of the 9th of June, and early on the morning of the 10th, my little girl and I set off for the Drachenfels. The day was not good for entomology, there was a high wind which just kept off the rain that otherwise would have fallen; it was, however, favourable for walking, which, perhaps, made the scales of the balance even. We first crossed the railroad and went up the little path amongst the vineyards, and at the first wood began to entomologize; *Lithographia Penkleriana* was very abundant amongst the oaks, and *Harpella Geoffrella* was also common. At the end of this little wood were plenty of broom plants, on beating which, *Cemiostoma spartifoliella* appeared in clouds, and this was the case wherever broom occurred in the district; we then emerged on a hilly field with a little round summer house on the summit, here a bad specimen of *Satyrus Megæra* occurred; and afterwards in some plants of tansy, amongst the corn, *Dicrorampha plumbagana* was met with; then followed the wood surrounding the castle, and here the larvæ of *Hypogymna dispar* were common enough for us to find two on one oak wreath; amongst the undergrowth of shrubs were abundance of plants of *Populus tremula*, these had many galls upon them, and *Saperda populnea* was so frequent as to become troublesome; *Euonymus europæus* was also plentiful, and its branches were in great measure stripped by the larvæ of *Hyponomeuta evonymella;* there were very numerous pyriform galls on the leaves of the beech; here *Pygæra bucephala* occurred, asleep, of course.

On going up to the Drachenfels, a fine male *Satyrus Mæra* was settled on the castle out of reach, we could not make him fly, and he finally folded his wings and went to sleep. We then returned by the same path, and after going down a little way diverged into an open space strewn abundantly with large masses of rock; there were fir-trees near, and *Coleophora laricella* was particularly plentiful, and so was *Pyrausta punicealis* on the *Origanum*, which helped to form the carpet under our feet. Here we were fortunate enough to take *Œcophora Lambdella* and *Butalis Scopolella* by beating amongst the shrubs; by sweeping, curiously, *Ægeriatipuliformis* was captured, and yet we could find no currant bushes near. After awhile, we again went downwards, and on coming to the end of the wood of the Drachenfels, turned off towards the Wolkenberg through a little pine copse, and here *Coccyx hyrciniana* was found in swarms, and *Ephyra omicronaria* was met with asleep on a pine trunk; after this, was a little hedge with *Prunus spinosa* and *Rosa canina*, and out of this we beat *Roxana arcuana*, *Antithesia pruniana*, *Cnephasia hybridana*, and *Argyrotoza Conwayana;* then proceeding up the wooded path leading to the Wolkenberg, we found by beating *Acidalia incanata* and *remutata*, *Gelechia aleella*, *Acrolepia cariosella*, and *Hypsolophus fasciellus* : *Tischeria complanella* was abundant amongst the oak, and on the summit of the Wolkenberg *Crambus chrysonuchellus* was met with. In coming down we caught *Phasiane plumbaria*, which was common, and one female *Gomphus*, the only dragon-fly seen that day, and, with the exception of a *Libellula depressa*, the only one we saw in the neighbourhood. We again went to the Drachenfels, and dined at the little Gast-hof there, and in coming back by the same route, we took *Acidalia aversata*, *Ephyra punctaria*, *Camptogramma bilineata*, *Phlæodes tetraquetrana*, and *Gelechia triparella;* *Carabus auratus* came out as it grew towards evening where we had seen *Cicindela campestris* in the morning, and we found two of *Dasychira pudibunda* asleep on a stone wall which bounded a vineyard in our road.

After breakfast on the 11th, we again set out for a ramble, at first taking the same road through the vineyards, but diverging from it on entering the wood, this brought us to a road which we followed until it divided at a spot where there was a directing post, and a very pretty stone cross. We took the left-hand turning to the Wolkenberg, and just past this spot, *Adela fibulella* was found basking as usual in the flower of a *Veronica;* a little further on, under an apple tree (for there was an orchard on one side of the road), was *Argyresthia curvella*, and in some meadows near, by sweeping we obtained *Micropteryx Seppella*, *Crambus hortuellus*, and *C. pratellus* in abundance. Ascending higher, we came to some drier cornfields, and by the bank-side, which served as a hedge, we met with *Grapholitha hypericana;* in a clover field, *Stigmonota compositella* was found, and *Eupœcilia nana;* a tansy hedge around this seemed to be a perfect paradise for *Dicrorampha:* of these, *D. plumbagana* was the most abundant, but *D. cinerosana* and *D. agilana* occurred also, as well as our common *D. Petiverella.* After this, we came to a wood where we met with *Hypsolophus fasciellus* again, and such swarms of *Coccyx hyrciniana* as to be annoying; there were abundant cocoons of *Talæporia pseudo-bombycella* and *Psyche.* Of the latter, we brought home one which produced a male, and identified the species; in a spider's web, the remains of an unfortunate *Epione advenaria* were here found, and in the herbage amongst *Orobus tuberosus*, *Anchylopera Lundana* was very abundant; *Anchylopera biarcuana* occurred also. The wood became bounded on the left by some rich meadows, but just at one corner of them was a drier spot with broom plants growing, here we caught *Cœnonympha Pamphilus* (the only butterfly seen this day), *Zygæna lonicerœ*, *Euclidia glyphica*, *Fidonia limbaria*, and *Crambus pratellus;* the meadows themselves swarmed with *Emmelesia albulata*, *Botys fuscalis*, and a species of *Eupithecia; Zygæna lonicerœ* was also very abundant, and my little girl caught one *Ino statices* in the flower of a large blue *Centaurea.* We were evidently skirting round the Wolkenberg, and some way from the summit of any hill, so a little further on we entered the wood on the right side, and clambered up to the crest; the open spaces in the wood were very gay with *Arnica* flowers, on which lurked a large crab-shaped spider almost as yellow as the flowers themselves, and lilies-of-the-valley were yet in bloom. By beating in the trees, we got *Lithosia mesomella*, *Anchylopera ramella*, *Phlœodes tetraquetrana*, and *Lithographia campoliliana.* The following were flying about commonly: *Fidonia atomaria*, *F. limbaria*, *Venilia maculata*, and *Euclidia glyphica; Pleurota bicostella* was also disturbed as we walked along.

The view looking across to the Wolkenberg and the Drachenfels was very grand, and the valley beneath with its village and little church looked invitingly pretty, but rain threatened, and we made rather a hurried descent home, and somehow missed our path, coming back to Königswinter by quite a different route. On our way, we caught our first *Glyphipteryx Bergstraessella*, it was beaten out of a beech, close by a little arbour in the road, and was mistaken by me at a superficial glance for a *Semasia;* a little further on, there was a boulder by the side of our path, and on this were a few plants of *Asplenium septentrionale*, in gathering these we found *Pachetra leucophæa* asleep, the only *Noctua* except *Euclidia glyphica* taken by us in the district. Our path led us to the summit of the vine-clad hill which overlooks Königswinter, and just as we came to the cross opposite the cemetery, a beautiful *Eupæcilia ambiguella* was captured, but unfortunately crushed in the process of boxing. Soon after we came to our resting place the rain began, and it poured down steadily all night, and during almost the whole of the next day, without intermission.

On the 12th, however, under the shelter of a vast umbrella, we went out to see how a large *Vanessa* larva which we had noted as hung up by the tail to a garden wall was getting on, we secured him just as he had changed, and another pupa near. This last produced *Vanessa polychloros* since our return home; under the wall we found many cocoons of, as we thought, *Cerostoma xylostella*, some of these were taken, and two of *C. persicella* appeared from them subsequently, the others being ichneumoned.

The 13th was a cloudless day, the sun shining most brightly, and the heat intense, enough indeed, to make us feel more than lazy; it quite changed the aspect of the woods, there was no beating required to dislodge the insects, the air was teeming with life, the beetles were chiefly Longicorns, the smaller chafers and *Chrysomelidæ:* amongst the Longicorns was a very pretty *Clytus*, black, saving a white longitudinal spot near the base of each elytron, almost surrounded by a curved white line; rather below the middle of the elytra was another transverse white line broader towards the centre, and the apex was also white. Amongst the flies was a large *Empis?* with the basal half of the wing deep black; *Syrphidæ* were scarce, but there were some handsome *Ctenophori* in the wood: *Tenthredinidæ* and the smaller *Hemiptera* were abundant.

We went up our usual path, and when we came to the first wood, an *Arctia villica* made us leave our route and diverge through the bushes; we here captured a fine *Œcophora grandis*, either disturbed by us, or else flying in the sunshine; we soon came upon the well-known "Stones under the Wolkenberg," so plainly seen from the Rhine Banks, and here was a sight very glorious to an English entomologist. *Aporia cratægi* was sailing about in abundance, a female was fluttering around a pomaceous shrub (probably *Aronia rotundifolia*), on which she evidently intended to lay her eggs; whilst we were securing some of these as trophies, a lovely *Podalirius* flew calmly over our heads, quite out of reach, but distinct enough to note every marking in its wings; a male *Satyrus Mæra* was settling on the most inaccessible part of the rock, whilst a little agile lizard was peering out from a crevice and looking on at my vain endeavours to capture it. *S. Mæra* is very like *Megæra* in its ways, but stronger on the wing, and a finer insect. Close by this spot we also took *Melitæa Dictynna*, which we afterwards saw several times, and our only specimen of *Melitæa Artemis*, a female much worn, and of the light southern form. We returned through the wood to the broom plants, at the beginning of the hilly field, and here a very much wasted specimen of *Thecla rubi* was caught, also, hovering over the clover blossoms in the field, *Sesia bombyliformis* (the narrow bordered) and *Callimorpha jacobææ*, which was met with again during the day, fluttering lazily under the bushes.

Instead of going on to the Drachenfels, we went through the farm-yard on the left, and passed on towards the Wolkenberg through rather a dense wood; we rested in almost every inviting spot, and thus went by easy stages to the top; the only insects we captured that are not hitherto recorded were *Melanippe tristata*, which was frequent, *Satyrus Ægeria*, one wasted specimen; some larvæ of *Gonepteryx rhamni* on *Rhamnus frangula*, and a *Glyphipteryx*, probably *equitella*, as *Sedum album* and *Sedum rupestre* were abundant; one was taken as an example, but the pill-box was unfortunately lost; *Sericoris lacunana* was also noted as common; two of *Glyphipteryx Bergstraessella* were taken in one shady little dell within the wood. On our reaching the summit of the Wolkenberg, *Satyrus Mæra* was common, and in addition, two examples of a very handsome *Phycis* (*Ancylosis cinnamomella*) were taken, flying amongst the loose stones. In our descent, no fresh *Lepidoptera* occurred to us except *Sericoris urticana.*

An evening's stroll by the Rhine banks concluded our visit to Königswinter, and we then set our faces towards England.

The following is a classified list of the Lepidoptera taken by us amongst the Siebengebirge:—

Papilio Podalirius,
Gonepteryx rhamni,
Aporia cratægi,
Lasiommata Mægera,
„ Mæra,
„ Ægeria,
Cœnonympha Pamphilus,
Vanessa polychloros,
Melitæa Dictynna,
„ Artemis,
Thecla rubi,
Chrysophanus Dorilis.

——

Procris statices,
Anthrocera loniceræ,
Smerinthus populi,
Sesia bombyliformis,
Trochilium tipuliforme.

——

Pygæra bucephala,
Hypogymna dispar,
Dasychira pudibunda,
Cybosia mesomella,
Hypercompa Hera,
Arctia villica,
Callimorpha jacobææ,
Fumea nitidella,
Pachetra leucophæa,
Cosmia trapezina,
Euclidia glyphica.

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Epione advenaria,
Venilia maculata,
Ephyra punctaria,
Ephyra omicronaria,
Acidalia incanata,
„ remutata,
„ aversata,
Fidonia atomaria,
„ limbaria,
Minoa euphorbiata,
Emmelesia albulata,
Eupithecia —— ?
Melanippe tristata,
Camptogramma bilineata,
Eubolia mœniata,
„ bipunctaria,
„ plumbaria.

——

Rivula sericealis,
Pyrausta punicealis,
Botys fuscalis,
Ancylosis cinnamomella,
Crambus chrysonuchellus,
„ pratellus,
„ hortuellus.

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Antithesia pruniana,
Lithographia campoliliana,
„ Penkleriana,
Phlœodes tetraquetrana,
Dicrorampha Petiverella,
„ plumbagana,
„ cinerosana,
„ agilana,
Coccyx hyrciniana,
Anchylopera ramella,
Anchylopera biarcuana,
„ Lundana,
Argyrotoza Conwayana,
Roxana arcuella,
Stigmonota compositella,
Grapholitha hypericana,
Cnephasia hybridana,
Sericoris lacunana,
„ urticana,
Eupœcilia nana,
„ ambiguella.

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Talæporia pseudo-bombycella
Adela fibulella,
Micropteryx Seppella,
Hyponomeuta evonymella,
Cerostoma persicella,
Gelechia aleella,
„ triparella,
Hypsolophus fasciellus,
Pleurota bicostella,
Harpella Geoffrella,
Œcophora grandis,
„ Lambdella,
Butalis Scopolella,
Acrolepia cariosella,
Glyphipteryx Bergstraessella
Argyresthia curvella,
Coleophora laricella,
Tischeria complanella,
Cemiostoma spartifoliella.

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Pterophorus pentadactylus.

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With the exception of thirteen species, all are British; and, making allowance for a few common insects that were not taken, and (this is mentioned as a warning to others) that I am now afraid to record from memory only, it will give us an average of about twelve species out of a hundred, not found in our islands.

For the names of many of these *Lepidoptera*, and for the careful examination of them all, I am indebted to my friend Mr. Stainton, at whose hospitable house I spent a few days at the close of this, the only holiday which I have had from work since my brief stay amongst the insects of south Devon in 1865.

35, Harborne Road, Edgbaston,
October, 1870.

Note on two species of Anisotoma new to the British Lists.—(?) ANISOTOMA GRANDIS, Fairm. et Lab., Faune Ent. Franç., I, p. 316. I have long had in my collection three specimens of a large *Anisotoma* (taken by myself, by sweeping in Sept., 1863, at dusk, among long grass, &c., under trees at the top of the "Hilly Field," Mickleham, Surrey) which I have never been able satisfactorily to refer to any recorded species, or to consider sufficiently distinct from *A. cinnamomea,* which also occurred to me at the same locality. My attention, however, having been recently drawn to the allies of the latter species, I find that one at least of the three specimens above mentioned (a ♀) agrees well enough with the description of *A. grandis,* differing as it does from *cinnamomea* in its rather lesser size (it slightly exceeds two English lines in length) and convexity; in its entirely rufous antennæ, of which the club is not quite so large or compact, with the 2nd joint not quite so small or transverse; in its thorax, when viewed from the front, not being so contracted behind, and with its anterior contraction less abrupt, more rounded, and beginning above the middle, and its anterior angles much less evident, being rounded off; and in the interstices of the striæ of its elytra being evidently punctured.

The two other specimens, which are smaller (1¾ lin.), exhibit the clear rufous club and other characters, with the exception of the interstitial punctuation, which is much as in *cinnamomea.* These two appear to be males, having their flattened hind femora terminated by a very slight angular point, with no vestige of other denticulation, and their hind tibiæ very slightly curved.

The smaller size, flatter appearance and less oblong build of these three specimens, and their light antennæ and differently shaped thoracic outline, certainly give them a considerably different facies from even the smallest *cinnamomea;* and I am induced to bring them forward as *A. grandis* (though with some doubt), as the publication of these observations may bring to light other examples. There is, I think, another specimen in Mr. Oliver Janson's collection, taken near Highgate, where *A cinnamomea* has not as yet been observed, so far as I know.

(?) ANISOTOMA OBLONGA, Erichson, Ins. Deutschl., iii, p. 53, note. I have also had for some time in my collection an example of another large *Anisotoma,* kindly given to me by its captor, Mr. J. T. Harris, of Burton-on-Trent, and which Dr. Kraatz returned to me early this year as probably the *A. oblonga* of Erichson. Having recently seen another specimen, beaten off broom in a wood near York by Mr. Hutchinson of that city, I now bring forward this species, also with some little doubt, but still with perfect certainty that it is a good species, and not referable to any other in our list.

Compared with *cinnamomea,* these insects are rather smaller (nearly 2¼ Engl. lines), distinctly less oblong and more ovate, with the antennæ shorter and entirely rufo-testaceous, the sides of the thorax less abruptly contracted in front, and with more rounded anterior angles; the elytra shorter and wider, with the punctures of the striæ stronger, and of the interstices more evident, the larger punctures in the alternate interstices being larger and more numerous; and the legs shorter.

Both of the above mentioned specimens, as are those referred to by Erichson, appear to be females, having the hind femora rounded beneath at the apex.

Compared with the insects above brought forward as probably *A. grandis,* these specimens are broader and shorter, with the antennal club not quite so strong, and with its second joint shorter and more transverse; the three joints preceding the club more transverse; and the punctures of the striæ of the elytra, and the larger interstitial punctures, stronger. The fourth stria, also, appears to be slightly sinuous about the lower third. The hinder femora, moreover, differ from those of the ♀ of my supposed *A. grandis* in being rounded off beneath, whereas in that insect they are distinctly angulated.—E. C. Rye, 10, Lower Park Fields, Putney, S.W., *December*, 1870.

On a variety of Philonthus xantholoma.—Some time ago, while examining series of *Philonthus xantholoma* and *P. fucicola*, I was surprised to find specimens which appeared at first sight to be intermediate between the two species. A slight comparison, however, showed them to be quite different from *fucicola*, by their possessing a variegated hind-body,* and a pale margin to the elytra. These specimens differ from *xantholoma* by being larger, by possessing a very large and very variosely punctured head, by the thorax being narrowed behind, and the under-face of the hind-body sparingly and coarsely punctured. This last character is so striking that I supposed the specimens possessing it to be a distinct species from *xantholoma*, till a letter from Mr. Rye induced me to look at my examples again, when, on un-mounting all of them for examination, I found all to be males. These males differ strikingly from ordinary males of *xantholoma*, by the characters mentioned above. Though the size and development of the head varies considerably in these individuals, the punctuation of the under-face of the hind-body remains constantly quite different from that of ordinary ♂ *xantholoma*. In the absence of any females, however, these cannot be looked on as a distinct species; and it would appear that *P. xantholoma* is a species possessing two distinct forms of the male sex, one resembling the female in all points, and distinguished therefrom only by the emargination of the sixth and seventh segments, and the other differing by the characters mentioned above. Should it be thought well to give a distinct name to this remarkable variety, it may be called *P. variolosus*. This form is, according to my experience, much rarer than ordinary *xantholoma*, though I have found it at various places on the coast in England and Scotland. The large headed males from Berwick, alluded to by Kraatz in the Ins. Deutsch., ii, p. 596, are no doubt to be referred to it; as is also the figure of *P. xantholoma* in Du Val's Genera.—D. Sharp, Eccles, Thornhill, Dumfries, *December*, 1870.

Note on Trogophlœus bilineatus, Steph.—There is a confusion existing as to this species which requires correction. In his Illustrations, Stephens describes and figures, under the name *Carpalimus bilineatus*, an insect beyond question the *T. riparius* of Lacordaire and Erichson; and this name, having priority, must be adopted. Erichson, misled by a specimen of another species sent by Spence as *bilineatus*, described under that name another species, and it becomes necessary, therefore, to find a new name for Erichson's *bilineatus*. v. Harold gives *obesus*, Steph., as synonymous with *bilineatus*, Erichson; but Stephens' description of *Carpalimus obesus* is certainly not applicable to the species in question; for which I therefore propose the name of *Erichsoni*.

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* Although it is customary, when speaking of this part in the *Brachelytra*, to call it the abdomen, this is clearly a mistake. Though there may be some reason for speaking of the under-surface of the hind portion of the body among the *Coleoptera* as the abdomen, there can be none for calling by that name the exposed dorsal portion of the hinder segments. The Germans use the word "*Hinterleib*" for the part we speak of as abdomen; and it would perhaps be an improvement if we were to use the equivalent "hind-body," or some such word. If any one can suggest a better name than this, I shall be much obliged to him.—D. S.

The synonymy will then be—1. T. BILINEATUS, Steph.
riparius, Lac., Er., Kr.
2. T. ERICHSONI, Sharp.
bilineatus, Er., Kr.

ID.

Note on Trogophlœus foveolatus, Sahlb.—The three specimens of *Trogophlœus foveolatus* mentioned by Mr. Rye in the last No. of this Magazine, as having been shown to him by Dr. Power, were taken by me on the Kent Coast, at Whitstable, in March, 1869. I found them in tidal refuse, in company with *T. tenellus*; but, although I have frequently visited the locality since, I have not again met with the species.—G. C. CHAMPION, 274, Walworth Road, S.E., 8*th December*, 1870.

Oncomera femorata at Silverdale, near Lancaster.—When sugaring last September at Silverdale, near Lancaster, I took several specimens of both sexes of the above named beetle, which were attracted by the repast. As this appears to be a new locality for the insect, possibly its capture there will interest Coleopterists. Silverdale is situated on the limestone tract which separates the chief part of Lancashire from the lake district.—FRANK ORDE RUSPINI, Fulshaw Farm, Wilmslow, Cheshire —2*nd December,* 1870.

On a collection of insects from the neighbourhood of the Cheviot Hills.—Having in June and again in the end of September and beginning of October (1870) devoted some days to the exploration, entomologically, of the hilly district round Wooler in Northumberland, inclusive of Cheviot and Hedgehope, I wish to make known the results; several of the insects obtained being new to that part of the country, or otherwise from their distribution or rareness having some special interest. My friend Mr. Bold has assisted me with the naming and arrangement. For other particulars, I must refer to Mr. Bold's revised "Catalogue of the *Coleoptera* of Northumberland and Durham," or to a paper drawn up by myself for the Berwickshire Naturalists' Club. Owing to rain and misty weather, Cheviot itself has been but partially examined, on this occasion; but it is to be hoped that, in some subsequent season, it may be overtaken, and no longer be regarded as a *terra incognita*.

COLEOPTERA.

Banks of streams, pools, &c.:—*Bembidium monticola, decorum, punctulatum, Schuppellii, paludosum; Bradycellus placidus,* Till-side; *Tachyusa constricta, scitula, flavitarsis; Homalota curraх, insecta, cambrica, elongatula, graminicola, succicola, subœnea,* Sharp, *fungi; Gymnusa variegata,* among grass at the mouth of a rivulet; *Philonthus umbratilis* and *rubripennis, Bledius subterraneus, Heterocerus marginatus; Stenus guttula, impressus, nitidiusculus; Psylliodes napi* on *Cardamine sylvatica*; *Choleva grandicollis, Kirbii, coracina, tristis, morio* and *Watsoni*.

On heaths and in mossy places in bogs, &c.:—*Dromius nigriventris*, shaken out of heather; *Bradycellus collaris* and *similis; Trechus minutus* and *obtusus* (both also on Cheviot). *Hydroporus monticola* and *parallelus*, Sharp, and *obscurus*; *Myllæna elongata* (also by sides of hill streams); *Lathrobium quadratum*, *Lesteva punctata* (also in marshes), *Hypocyptus læviusculus* and *anisotomoides*, *Tachyporus transversalis, Mycetoporus lepidus; Stenus brevicollis* and *buphthalmus*, *Helodes marginatus*, *Telephorus paludosus*, *Prasocuris beccabungæ*, *Graptodera longicollis* (♂ and ♀, but mostly ♀).

In fungi, agarics, &c., and also from woods, mostly of old alder:—*Bembidium Mannerheimii*, Wooler-water; *Autalia impressa*, *Bolitochara lucida* (beneath *Polyporus versicolor*)*; Leptusa fumida* and *ruficollis* in tree fungi; *Oxypoda spectabilis*, marsh under alder; *O. alternans*, plentiful in agarics; *Gyrophæna gentilis*, between gills of agarics: *Myllæna brevicornis*, marshes; *Phlœopora reptans*, under bark of Scotch pine: *Homalota pavens*, *volans*, *æneicollis*, Sharp, *xanthoptera*, *vicina*, *picipes*, *fungicola*, *occulta*, *ignobilis*, Sharp (plentiful), *sodalis; Tachinus proximus*, dark glen in the hills; *Quedius umbrinus*, marshes; *Philonthus succicola*, agarics; *Syntomium æneum*, moss; *Olophrum piceum*, *Lathrimæum atrocephalum* and *unicolor*, marshes; *Deliphrum tectum*, *Homalium vile*, *H. Allardi*, *H. exiguum* (base of alder fungi), *H. abietinum* (under bark of stumps of Scotch pine), *H. brevicorne* (eight specimens, about the base, and between it and the bark, of fresh growing specimens of *Polyporus radiatus*, on alder, near Langlee, in Wooler-water, and on the Lill Burn); *Sphærites glabratus*, from the centre of a decayed *Boletus luteus*, in dark glen on the hills; *Choleva longula* and *tristis; Omosita depressa; Cryptophagus dentatus*, curious high-coloured varieties; *C. pilosus*, fungus of alder; *C. scanicus*, in dry agarics; *Rhizophagus depressus*, *dispar* and *bipustulatus*, in agarics on trees, as well as under bark. *Mycetophagus multipunctatus*, in the corky fungus of the alder (*Polyporus radiatus*); new to Northumberland, and, I suppose, to the north of England: it occurred to me in several localities. *Triplax ænea*, with the preceding, but less numerous; occasionally on tree agarics also, and on the oak as well as the alder: about its northern boundary on the east side of the island. *Cis boleti* and *festivus*, on *Polyporus versicolor* and *P. vulgaris; Salpingus foveolatus*, base of *Polypori; Orchesia micans*, on *Polyporus radiatus* of the alder, in various localities. *Carida flexuosa* (which formerly I had both taken and bred from this fungus, gathered in this vicinity), did not occur on this occasion. *Lathridius nodifer* and *minutus*, from dried-up agarics growing upon and beneath alders; the first locally numerous.

From the hills:—*Carabus nitens*, high moors at Broadstruther; *Patrobus excavatus*, plentiful on Cheviot and Hedgehope up to the summits (no trace of the Scottish mountain species *P. assimilis*); *Calathus melanocephalus*, Cheviot and Hedgehope up to the summit, nearly all were of the dark mountain variety; *C. micropterus*, Cheviot and Hedgehope; *Anchomenus fuliginosus*, Cheviot: *Pterostichus orinomus*, top of Cheviot; *P. æthiops*, in the Bizzle, Cheviot; *Amara lunicollis*, in Henshole, Cheviot; *Bradycellus cognatus* and *collaris*, Cheviot and Hedgehope; *Autalia puncticollis*, Sharp, in Dunsdale, Cheviot (1869); *Ocalea badia*, one in a birch fungus (*Polyporus betulinus*), in Goldscleugh wood, Cheviot; *Oxypoda rupicola*, Rye, Cheviot; *Homalota clavipes*, Sharp, Henshole, Cheviot, also Hedgehope; *H. tibialis*, Cheviot and Hedgehope; also in a moss near Wooler; *Homalota curtipennis*, Sharp, Henshole; *H. eremita*, Rye, Cheviot, also from a peat moss near Wooler; *H. gregaria, longicornis, atramentaria, fungicola* and *elongatula;* also from Cheviot. *Tachinus laticollis*, Cheviot (1869); *Quedius semiæneus* and *Q. fulvicollis*, Cheviot; *Philonthus procerulus*, Henshole in Cheviot; *Othius læviusculus* and *myrmecophilus*, Cheviot; *Stenus brevicollis, fulvicornis* and *latifrons*, Henshole; *Otiorhynchus maurus*, in bilberry plots, up to the top of Cheviot; also on apex of Hedgehope in October; also on tops of lower hills where bilberries grow. *Anthophagus alpinus*, half-way up Cheviot; usually under stones at the top of that hill, and Hedgehope. *Arpedium brachypterum*, Henshole; also at the tops of Cheviot and Hedgehope. *Aphodius subalpinus*, all over the Cheviot, and at the top; *A. putridus*, rarer, Dunsdale. *Cryptophagus setulosus*, under heath, rather high up, Cheviot. *Corticaria fuscula*, Cheviot and Henshole, and peat moss near Wooler, among grass and bent. *Mniophila muscorum*, by shaking moss, Henshole, Cheviot.

I may also mention *Agabus arcticus* and *A. congener*, found in a pool on Hedgehope, some years since; and *Carabus glabratus* in the Bizzle, Cheviot.

HEMIPTERA.

Sphyrocephalus ambulans and *Nabis apterus*, on Cheviot; *Salda stellata, pallipes* and *saltatoria*, by stream-sides; *Scolopostethus affinis*, plentiful on heather; *Dipsocoris alienus*, among gravel of hill burns; *Pantilius tunicatus; Peritrichus luniger, Trapezonotus agrestis, Drymus sylvaticus, D. brunneus, Stygnocóris sabulosus*, mostly in moss, in alder woods; *Ætorhinus angulatus*, alder.

HOMOPTERA.

Liburnia limbata, L. discolor, Ulopa obtecta, Idiocerus populi, I. fonticola, Acocephalus bifasciatus, Aphrophora alni, Iassus mixtus, I. sexnotatus.

Of the *Anthophila* I observed *Andræna extricata?* (♂) and *A. cingulata; Sphecodes ephippia, Colletes succincta, Halictus rubicundus, tumulorum* and *æratus.* —JOHN HARDY, Old Cambus by Cockburnspath, N.B., *November 14th*, 1870.

Notes on captures of Hemiptera-Heteroptera during 1869 *and* 1870.—During the past two seasons, I have collected all the species of *Hemiptera* that I came across; and, as they include several rare species, I have thought that a few notes on them would not be uninteresting.

Amongst others, the following species have occurred to me:—*Sehirus dubius*, Scop.; rarely, in moss, under junipers on the chalk downs near Croydon, in the winter months. *Corimelæna scarabæoides*, Lin.; commonly, at Mickleham, in moss, in April; also at Darenth. *Sciocoris terreus*, Sch.; on the sand-hills at Deal, rather common; May and July. *Ælia acuminata*, Lin.; Darenth Wood, by beating in June and July. *Ælioides inflexa*, Wolff; rather common, at Shirley, Mickleham and Darenth, by sweeping in May. *Eysarcoris æneus*, Scop.; not rare, in the New forest, at Lyndhurst, by sweeping in grassy places in the young plantations; July. *Zicrona cærulea*, Lin.; common in moss, on the chalk downs at Croydon and Mickleham. *Rhacognathus punctatus*, Lin.; a few specimens at Shirley and Leith Hill, in moss amongst heath; April and September. *Asopus luridus*, Fab.; Darenth and Mickleham, by beating in May and June; a few specimens. *Choro-*

soma Schillingii, Sch.; on the sand-hills at Deal; September. *Stenocephalus agilis*, Scop.; Darenth Wood, commonly, by sweeping low plants in May and June. *Metacanthus puncticeps*, Germ.; commonly, by sweeping *Ononis spinosa*, at Betchworth; September. *Berytus Signoreti*, Fieb., in moss, Betchworth, April; *B. crassipes* and *B. minor*, H. S., in sand-pit at Shirley, April; *B. commutatus*, Fieb., in moss, Forest Row, Sussex, September. *Neides tipularius*, Lin.; of this rare species I have taken four specimens, in moss, on Box Hill, in October. *Plociomerus fracticollis*, Sch., in stack refuse, Wicken fen, August. *Calyptonotus lynceus*, D. & S., on the sand-hills at Southend, one specimen, in July. *C. pedestris*, Panz.; in sandy places; Dartford and Southend; June and July. *Eremocoris erraticus*, Fab., in moss on Box Hill; May and September. *Tropistethus holosericeus*, Scholtz; three specimens, in moss under junipers, at Mickleham; April. *Stygnocoris rusticus*, Fall.; in moss, Reigate; September. *Acompus luridus*, Wolff; rather commonly in Wicken fen, in stack refuse; August. *Henestaris laticeps*, Curt.; in sandy places on the coast, at Whitstable, amongst sea-thrift; June. *Ischnorhynchus resedæ*, Panz.; by sweeping at Darenth in June. *Zosmerus quadratus*, Fieb.; commonly on the coast at Southend, amongst grass, &c.; September and May. *Monanthia simplex*, H. Sch.; by sweeping at Darenth Wood in July and August. *Pithanus Märkeli*, H. Sch.; Weybridge, by sweeping in July. *Deræocoris ticinensis*, Mey.; sparingly, by sweeping in Wicken fen; August. *Macrocoleus solitarius*, Mey.; by sweeping at Sevenoaks, Kent; July. *Amblytus affinis*, Doug. & Scott; by sweeping at Weybridge in July. *Hoplomachus Thunbergii*, Germ., and *Conostethus roseus*, Fall., by sweeping at Weybridge in July. *C. griseus*, Doug. & Scott, in profusion, in a salt marsh at Whitstable, on and under *Artemisia maritima*, in June. *Halticocoris pallicornis*, Fab.; by sweeping at Betchworth in July. *Anthocoris sarothamni*, Doug. & Scott; on broom at Weybridge; July. *Xylocoris ater*, L. Duf.; under bark, Croydon. *Salda pulchella*, Curt., and *S. littoralis*, Lin., commonly, in a salt marsh at Whitstable, in June. *Ploiaria vagabunda*, Lin., in *débris* of fern, Darenth Wood; October. *Coranus subapterus*, De G.; by sweeping heath at Leith Hill; September. *Hydrometra argentata*, Schum.; Wicken fen, in August. *Corixa affinis*, Leach, Gravesend, May; *C. præusta*, Fieb., Lee, April; *C. limitata*, Fieb., Tilgate Forest, May.

I am indebted to Messrs. Douglas & Scott for assisting me in determining most of the above species.—G. C. CHAMPION, 274, Walworth Road, S.E.

Late larvæ of Pieris brassicæ.—At the beginning of the present month, the cabbages in our garden were covered with broods of the larvæ of *Pieris brassicæ* in various stages of growth. The cold nights and frosts that prevailed at that time were fatal to a few of them, but the bulk escaped, and the present mild weather has greatly favoured them. Should it continue, many will be ready in a few days to assume the chrysalis state.

Yesterday, the warm genial day had a marked effect upon them, and I noticed them feeding voraciously or basking in colonies in the warm rays of the sun.

It will take yet a few weeks for the whole to attain their full growth; and, should the weather continue mild, the unwonted sight of larvæ of the common white butterfly in a state of nature near Christmas will be observable.

I will give you the subsequent history of the remaining broods. Some brought into the house a week since were yesterday commencing to spin up.—J. C. Miller, Lime Farm House, Eltham, 28*th November*, 1870.

Transformations of Lycæna Alsus.—For some time past, Mr. J. Gedge's note on this species, which was published in Vol. iii, E.M.M., at p. 205, had been tempting Mr. Buckler and myself to try to rear it from the egg, and during the past season we have put our plan into execution.

Several imagos, captured in Hampshire about June 15th, were sent on to me; I placed them on a plant of *Anthyllis vulneraria* in a large cylinder, and, although they died off rapidly, one female at least survived to lay about a dozen eggs, June 16th–18th; the larvæ began to hatch on the 21st, and at once took to the flowers of *Anthyllis*, either eating a hole through the downy calyx, and then through the corolla to the immature seed-vessel; or else beginning by eating some of the lip of the corolla, and then going down to the base of the style. From first to last the seed certainly was the part preferred, and whilst the larvæ were small they fed on it hidden within the corolla; when they had attained some size, they pierced the side of the calyx and corolla, and thrust in the forepart of their bodies to get at the seed-pod with its single seed, leaving their hinder parts outside, but still well hidden among the dense bunch of flowers which formed each head.

By July 1st, they were barely half-grown, but in the next fortnight they developed rapidly, some of them by the 13th having attained the length of a quarter of an inch, and soon after this the most advanced were full-grown: others, captured in the locality from which the imagos came, were not so far advanced, but most of these also had ceased feeding by the end of July: they then placed themselves about on the gauze covers of their cages, or on the under-side of anything in the cages that would hide them, and we expected to see them change to pupæ. However, up to the date of writing of this no such change has taken place, but those larvæ, which have not died, are waiting on quietly, and I suppose will not now turn to pupæ till spring.

The egg seemed generally to be deposited low down on the calyx of the *Anthyllis* flowers, and though thus hidden from casual observation, it may be easily detected on a careful search: it is, as might be expected, very small, shaped like the eggs of its congeners, namely, round, but more flattened than globular, with a central depression on the upper surface: this depression is the only place in which the pale green ground colour of the egg can be well seen, because the rest of it is closely covered by a raised white network of rhomboidal meshes, which, when viewed in profile, are seen to stand out boldly from the shell.

The larva escapes by an irregular hole in the middle of the upper surface of the egg, and is a mite of a fellow to look at, dirty whitish-green in colour, with a little black head, a dark place on second segment, and the tubercles bearing longish hairs: after a day or two the colour becomes somewhat reddish, and at the end of a week pale brown, with browner dorsal and sub-dorsal lines. After this there begins to be a little variation in colour in different individuals, some being more of a pinkish-brown, others more of a chocolate colour, the distinct dorsal stripe being of a deeper tint of the ground colour, and commencing as a broad triangular mark on the third segment, and becoming gradually narrower up to the eleventh, where it widens out into a lozenge shape, contracting again to a narrow stripe on the twelfth and thirteenth: the tubercles show paler than the rest of ground, because the brown hairs on them, being divergent, allow more of the paler skin to be seen. Just below the second row of tubercles comes the sub-dorsal line, which in fact is composed of a series of dark drown dashes, one on each segment, sloping backwards and downwards, so as to let the tubercle stand out in high relief; along the edge of the lateral ridge runs a whitish stripe, which is continued round the anal extremity; the belly and legs of same colour as the back. The whole skin is studded with short bristles of a dark brown colour; the head is black and polished, but with a streak above the mouth, and also the base of the papillæ, yellow.

After this there is no change in appearance, save that of growing paler and more unicolorous (perhaps, as the bulk increases, more of the paler skin shows between the dark bristles), until some specimens are of an ordinary flesh tint, and others of a brownish-flesh colour, and at this point the larvæ assimilate well with the changing of the corolla of their food-plant. After they cease feeding, they turn off to a faint greenish-yellow.

When full-grown the larva is about one-third of an inch long, and may be roughly compared to a moderately-sized grain of wheat cut in half, the back being arched in a curve, and the belly flat with the legs placed well under it; or it may be compared to a very tiny tortoise, the head being very small and retractile, and a lateral ridge running all round, and giving the appearance of an upper shell; the second segment is the longest, and has a sort of triangular plate on its middle, and the last three segments are slightly depressed; the inner rows of dorsal tubercles are rather projecting, and thus form between them a sort of dorsal hollow, and the second row I have already mentioned as affecting the sub-dorsal line.—JOHN HELLINS, Exeter, *9th November*, 1870.

Some notes on the young larva of Deilephila galii.—My observations on the early stages (unfortunately confined to the first three stages) of *D. galii* rather differ from Mr. Buckler's. On the 9th September, 1870, my friend Dr. Buchanan White gave me a very small larva, as that of *stellatarum*, found in Kirkcudbrightshire, on the borders of the Solway Firth: it was then about five lines in length; ground colour dark green, with a broad sub-dorsal line and a sub-spiracular narrow line white, and the horn, rough, straight, *black*. It moulted without difficulty, about a fortnight after I got it, and emerged greatly changed in appearance.

Its length now was one inch two lines; ground colour entirely black; no dorsal line, sub-dorsal line white and very narrow, and strung on to it a row of ten large lemon-yellow spots with orange centres; sides sprinkled with minute white dots, a very narrow sub-spiracular line interrupted at each segment; three rather marked transverse raised lines on each segment; horn rough, *straight*, *black*.

This garb only lasted about twelve days, when it took to the muslin cover of its prison, and there remained without moving for five or six days, finally moulting on the 6th October, with evident discomfort: and it was merely by keeping it quite warm and in the sun that I could persuade it to eat after this moult.

It was now one inch eight lines in length; ground colour black, with the head, plate on second segment, and anal flap bright red-brown (the red-brown gradually toned down to dark brown); no dorsal line, no sub-dorsal line, only the row of conspicuous lemon-yellow spots remaining, each having a black dot in the centre broadly margined with orange; streak across the mouth and the base of papillæ yellow. Sides spotted with clear yellow dots. Spiracles pure white, an interrupted row of small dots in place of the sub-spiracular line. Horn *red-brown*, slightly rough, curved outwardly. To speak more exactly, the head was black all about the mouth, and red-brown above.

On the 14th October this larva unhappily, after being extremely restless, effected its escape from some unseen aperture, and was no more heard of, and so my notes, taken from time to time while I had it, abruptly ended. The most noticeable feature to my mind is the *straight black* horn during the first two stages, as in all accounts I have seen, it is always red-brown. It fed freely on *Galium verum*, with occasionally a little *Fuchsia*.

It will be noticed how much later this larva was than those seen by Mr. Buckler: it is evidently very variable.—W. Douglas Robinson, Christ Church, Oxford, *November 1st*, 1870.

Occurrence of Plusia ni at Penzance.—A few days since, Miss E. Carne, of Penzance, called to see my collection, bringing a few insects to be named. Amongst them was a *Plusia*, which Miss Carne thought might be *interrogationis*, but I saw at once it was neither that nor *gamma*, and, referring to the pages of the Ent. Mo. Mag. for the description of *P. ni* by Professor Zeller and Dr. Knaggs, was able to pronounce it as that species.

It was captured by Miss Carne in her garden at Penzance, hovering over flowers, early in the evening in May, 1869; and has been very kindly presented by her to me.—W. R. Jeffrey, Saffron Walden, *November 28th*, 1870.

Further specimens of Xylina conformis.—I have now on my setting board a fine ♂ and ♀ of *X. conformis*, taken November 8th and 10th; rather a late time to go out mothing.—J. B. Hodgkinson, 15, Spring Bank, Preston, *November 21st*, 1870.

Capture of Elachista serricornis.—I took eleven specimens of this rare species on 20th July, at Witherslack, by sweeping. I have searched morning, noon, and night, but as yet cannot find when it is on the wing; and the midges worry one fearfully whilst looking for it.—Id.

Larvæ of Exapate gelatella on Rhamnus catharticus.—I have just bred both sexes of *Exapate gelatella* from larvæ found on *Rhamnus catharticus* in May and June last. The larvæ lived in dwellings formed by drawing a leaf to a stem, or to another leaf, of the plant. So far as I am aware, the larva of this moth has not hitherto been observed to feed on the above-named plant.—J. E. Fletcher, Pitmaston Road, Worcester, *December 8th*, 1870.

Entomological Society of London, 21st November, 1870. A. R. Wallace, Esq., F.Z.S., President, in the Chair.

Mr. Bond exhibited *Fumea reticella* ♂ ♀, with cases, bred by Mr. Button; also *Acidalia strigaria*, Hüb., *Phycis obductella*, F.v.R., likewise captured by Mr. Button; new or rare British species.

Mr. Müller exhibited the larva of *Ægosoma scabricorne* from the trunk of an old lime tree in Basle, blown down in March, 1868. The larvæ occurred plentifully in these trees at the locality mentioned.

Mr. F. Smith exhibited a portion of a wasps' nest from Gloucestershire infested with the dipterous *Phora flora;* in some cases twelve or fourteen larvæ of the fly were in one cell, and out of two hundred or three hundred cells not more than a dozen had escaped. Mr. Verrall remarked that he had bred a *Phora* from the body of a perfect hornet.

Prof. Westwood said he had recently bred *Phlœotribus oleæ* in numbers from the trunk of an ash-tree from Halifax; the tree had, however, been imported from France, so that the insect could, at present, not be considered as naturalized among us.

Mr. Butler read "Descriptions of Diurnal *Lepidoptera*, chiefly *Hesperidæ*," and exhibited numerous examples in illustration thereof, chiefly from the collection of Mr. Druce.

5th December, 1870. F. P. Pascoe, Esq., F.L.S., Vice-President, in the Chair.

G. H. Verrall, Esq., of Denmark Hill, formerly a Subscriber, was elected a Member.

Mr. E. Saunders exhibited three new British species of *Hemiptera-Heteroptera*, viz., *Salda arenicola*, *Plociomerus luridus*, and *Hadrodema pinastri* (see p. 156); also several closely allied species of *Strachia*, in proof of his assertion that Messrs. Douglas and Scott in their work had confused the synonymy of several European species.

Mr. Butler exhibited a dwarfed example of *Vanessa urticæ* recently bred, being the solitary exception out of a brood of larvæ, which had produced perfect insects of the ordinary size.

Mr. F. Smith exhibited, on behalf of Mr. Champion, specimens of *Calodera rubens* from Lewisham, and *Baridius scolopaceus* (see p. 107).

Mr. Pascoe exhibited two remarkable Longicorn beetles captured by Capt. Lang in North India; one having the facies of a South American species of *Sphæron*, the other being a *Cerambyx* with the facies of *Dorcadion*.

Mr. Müller exhibited photographs of galls of *Cynipidæ* on various species of North American oaks sent by Mr. Bassett; also of other species *(Rhodites)* on roses, from the same quarter.

Mr. S. S. Saunders exhibited a living specimen of a fine spider from Greece—*Eresus ctenizoides*. It was found at Syra beneath stones.

Mr. F. Smith mentioned that when in Devon recently he had observed a species of *Asilus* (*albiceps*, Meigen) feeding upon grass-hoppers.

The Rev. A. E. Eaton communicated "A Monograph on the *Ephemeridæ*," part i. This is an elaborate and exhaustive work on this difficult family, the result of several years almost exclusive attention to the group. He enumerated about 178 known species, some of which were not in a satisfactory state so far as regards a clear appreciation of their positions as given in the original descriptions.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA.*

(Revision of the Family *Cixiidæ*).

BY JOHN SCOTT.

(*Continued from page* 148).

Species 5.—CIXIUS CONTAMINATUS.

Flata contaminata, Germ., Mag., iii, 196, 7 (1818); Thon Archiv., ii, 49, 29 (1829).

Flata albicincta, Germ., Mag., iii, 199, 9 (1818).

Cixius contaminatus, Burm., Handb., ii, 157, 4 (1835); Flor, Rhyn. Liv., ii, 24, 2 (1861); Marshall, Ent. Mo. Mag., i, 155, 2 (1864); Kirschb., Cicad., 49, 9 (1868).

Cixia albicincta, Burm., Handb., ii, 158, 6 (1835).

Head black, keels broadly pale brownish-yellow. *Face* brownish-yellow. *Elytra* almost invariably with three short black streaks along the anterior margin, and a short transverse fuscous streak midway betwen the cuneate patch and the apex.

Thorax: pronotum clear brown, or brown, or brownish-yellow; on the sides between the keels and the posterior margin, narrowly black. *Scutellum* black, keels and the side margins more or less reddish-brown. *Elytra* pale, greyish or dark grey, granules on the interior nerves somewhat minute, thickly disposed and placed irregularly, generally in pairs, sometimes placed from left to right, sometimes from right to left, and with an occasional single granule between them, towards the apex; anterior margin almost constantly with three short black streaks, from the first of which a more or less distinct brown band passes across to near the apex of the clavus; cuneate patch brown, in which is a few black granules; and midway between this and the apex is a short transverse fuscous streak. *Wings* pale, nerves piceous. *Legs* yellow, or with a fuscous shade; *thighs* pitchy-black.

Abdomen black; *genital segment* in the middle underneath, "claspers," &c., yellowish. Length, 2—2¼ lines.

In the variety *albicincta*, the inner longitudinal half of the elytra are dark brown, the outer half pale, with the usual specific characters.

This is our smallest species, and is at once to be recognised from all the others by the three short black streaks on the anterior margin. The dark grey form, on first sight, very much resembles *stigmaticus*.

Widely distributed, although the varieties appear to be confined to the south. It occurs from June to September, on various trees and bushes.

C.

Species 6.—CIXIUS STIGMATICUS.

Flata stigmatica, Germ., Mag., iii, 199, 8 (1818) ; Thon Archiv., ii, 49, 30 (1829).

Cixia stigmatica, Burm., Handb., ii, 157, 5 (1835).

Cixius musivus, Marshall, Ent. Mo. Mag., i, 155, 3 (1864).

Cixius stigmaticus, Kirschb., Cicad., 47, 4 (1868).

Elytra without bands, and the marginal nerve without united granules ; dark grey or brownish-grey, with several irregularly disposed, and more or less confluent, darker spots.

Head : crown, face, and *clypeus* black, keels clear brownish-yellow.

Thorax : pronotum ferrugineous, sometimes piceous between the keels. *Scutellum* black, keels somewhat prominent, side margins, at the base, brown. *Elytra :* nerves somewhat whitish, granules thickly disposed, generally along the top of the nerves, but sometimes slightly inclined, in pairs, from left to right towards the apex ; cuneate patch brown, more or less distinct, transverse nerves black. *Wings* pale grey, darker towards and at the apex, nerves dark brown or black. *Legs* yellow ; *thighs,* 1st and 2nd pairs black, 3rd more or less dark piceous, apex narrowly yellow ; *tibiæ,* 1st and 2nd pairs with a narrow blackish ring near the base ; *tarsi,* 3rd joint of the 1st and 2nd pairs black, 3rd pair, 3rd joint, brown.

Abdomen black, side margins narrowly bright orange-red ; *genital segment* black, "claspers," &c., fuscous-yellow. Length, 2¼—2⅓ lines.

Somewhat larger than *contaminatus*, with larger granules, and without the three short streaks along the anterior margin, so characteristic of that species.

Apparently not common, although widely distributed. I have seen specimens from Inverness-shire (Dr. White) and from Deal (Mr. Douglas), the latter taken amongst *Hippophäe rhamnoides.* It occurs in June and July.

Species 7.—CIXIUS SIMPLEX.

Flata simplex, H. Schf., Nom. Ent., i, 64 (1835).

Elytra pale, marginal granules elongate, somewhat thickly placed, apex between the nerves with pale fuscous spots ; *clavus,* marginal nerve, next the apex, black.

Head: crown, face, and *clypeus* black, keels brownish-yellow. *Eyes* brown. *Antennæ* yellowish.

Thorax : pronotum black, side keels and posterior margin pale brownish-yellow. *Scutellum* black, keels acute, side margins at the base, and at the junction with the side keels, narrowly clear brown. *Elytra* pale, somewhat opaque, marginal nerve, as far as the black cuneate patch, white, from thence round the apex brown or fuscous, inner nerves pale yellowish-white, granules elongate, black, somewhat eye-shaped, placed at regular intervals along the top of the nerves, and somewhat more thickly disposed on the 1st and 2nd nerves of the corium, at the apex the granules are inclined to become more or less confluent; transverse nerves fine, black; apex of the claval suture, and a short streak next the junction of the nerve with the inner margin, black. *Wings* pale at the base, towards and at the apex pale fuscous, nerves piceous or fuscous. *Legs* yellow; *thighs* pitchy-black, apex narrowly yellow; *tibiæ* with a narrow, piceous streak down the sides, base of all the pairs with a narrow blackish ring; *tarsi* yellow, 3rd joint of the 1st and 2nd pairs black, of the 3rd pair brown.

Abdomen black, margins of the segments above narrowly, and sides, orange-yellow or red; *genital segment* black, "claspers," &c., somewhat fuscous-yellow.

Length, 2¼ lines.

This insect is exceedingly like the following species (*similis*), and can only outwardly be distinguished from it by the different shape of the granules, their closer position both on the inner nerves and along the marginal nerve, and by the nerves being slightly more yellow.

I only know of two examples; one (a ♀) taken by Mr. Dale at Bonchurch, in October, the other (a ♂) in my own collection, without date or locality.

Species 8.—CIXIUS SIMILIS.

Cixus leporinus, Marshall, Ent. Mo. Mag., i, 155, 4 (1864), *nec* Panzer.

Cixius similis, Kirschb., Cicad., 49, 7 (1868).

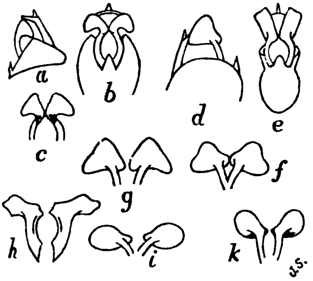
Elytra somewhat whitish, marginal granules elongate, and placed at wide intervals, all the nerves white, apex without spots between the nerves.

Head: crown, face, and *clypeus* black, keels brownish-yellow. *Eyes* brown. *Antennæ* brown.

Thorax: pronotum black, side keels and posterior margin pale brownish-yellow. *Scutellum* black, middle keel sometimes brown, side margins, from the base to the junction with the side keels, narrowly brown. *Elytra:* marginal nerve from the black cuneate patch round the apex exteriorly yellow, interiorly fuscous, inner nerves chalk-white, granules elongate, of almost uniform width, somewhat remotely placed along the top of the nerve; transverse nerves fine, black. *Wings* pale, transparent, nerves fuscous. *Legs* yellow; *thighs* pitchy-black, apex narrowly yellow; *tibiæ* with a narrow, piceous streak down the sides; *tarsi*, 1st and 2nd pairs somewhat fuscous, 3rd joint black, 3rd pair yellow, 3rd joint yellow.

Abdomen black, margins of the segments above narrowly yellow, side margins orange-red; *genital segment* black, "claspers," &c., pale fuscous-yellow.

Length, 2¼ lines.



a. side view of genital segment of ♂ *Cixius stigmaticus.*
b. the same, viewed from beneath.
c. claspers of do.
d. side view of genital segment of ♂ *C. brachycranus.*
e. the same, viewed from beneath.
f. claspers of do.
g. „ ♂ *C. intermedius.*
h. „ „ *nervosus.*
i. „ „ *simplex.*
k. „ „ *similis.*

The more remote intervals of the granules, their difference in form, and the *chalk-white* nerves are the chief outward characteristics whereby to distinguish this species from *simplex.* The form of the genital organs of both species are abundantly distinct.

I have examined several individuals in Mr. Dale's collection, taken by him at Bonchurch, Isle of Wight, and it has also been taken by Mr. Douglas at Deal on *Hippophäe rhamnoides*, in company with *C. stigmaticus.* It appears in June, July, and October.

[Revision of the Family *Delphacidæ*, and descriptions of several new species of the genus *Delphax* of authors].

(*continued from p.* 75).

Species 5a.—LIBURNIA PALLIDULA.

Delphax pallidula, Boh., Handl., 48, 16 (1847); Öfvers., iv, 265, 9 (1847); Stål, Öfvers., xi, 191, 6 (1854); Flor, Rhyn. Liv., ii, 44, 3 (1861); Kirschb., Cicad., 25, 11 (1868) ♀.

Developed form ♂.

Pale yellow, with a slight fuscous shade. *Elytra:* middle nerve black.

Head yellow. *Antennæ* yellow, granules brownish. *Eyes,* in life, greenish; after death, dark brown. *Ocelli* minute, black.

Thorax: pronotum yellowish-white. *Scutellum* ferruginous, keels more or less broadly whitish. *Elytra: corium* between the anterior margin and the middle nerve almost white, from thence to the claval suture yellowish; the furcate middle nerve, from about in a line with the apex of the clavus, black; apex of the marginal nerve between the bifurcation, black; *clavus* yellowish, nerves darker. *Wings* pale, transparent; two entire nerves, the transverse nerve and a short one from its upper extremity to the dorsal angle, black. *Sternum* pale yellow. *Legs* pale yellow. *Claws* black.

Abdomen pale yellow, above frequently brownish, side margins and dorsal line pale; *genital segment* pale yellow, almost white.

Developed form ♀.

Like the above in all particulars; ovipositor black.

Undeveloped form ♂ and ♀.

Clear pale yellow.

Thorax: pronotum and *scutellum* between the keels almost white. *Elytra* lanceolate, as long as the abdomen, middle nerve at the apex generally brownish. All the other characters as in the developed forms.

Length: developed, 1⅓—1¾ lines; undeveloped, 1⅛ line.

Very closely allied to *L. Scotti*, and the resemblance is most remarkable in the undeveloped form. It is, however, more delicate than that insect, is smaller in every way, and has not the black spot on the cheeks, nor the ovate black spot at the apex of the elytra.

I am not aware that the developed form of *L. pallidula* has ever been noticed before, and it is on this account that I have described it. Although the type (undeveloped) which Dr. Stål was good enough to send me has *no* dark markings on the elytra, yet in fresh specimens there are more or less traces of the middle nerve being brownish next the apex.

Rare in the developed state; undeveloped form common.

Taken by myself at Wimbledon, in September.

Species 22a.—LIBURNIA EXTRUSA, *n. s.*

Undeveloped form ♂.

Yellow. Styloid processes black, viewed from above they are seen to project outwardly, and appear like a ∩.

Head: crown yellow, the foveæ small, somewhat deep and distinct. *Forehead* and *face* slightly dusky, keels, and a narrow transverse line a little above the lower margin of the eyes, pale yellow, base of the forehead brownish; *clypeus* brownish, keels pale yellow; *cheeks* yellow, inner margin narrowly brownish. *Antennæ:* 1st joint pale yellow, 2nd pale brownish-yellow. *Eyes* black. *Ocelli* black.

Thorax: pronotum pale yellow, keels distinct but not prominent; sides more or less fuscous beyond the keels. *Scutellum* pale yellow, keels distinct, sides more or less fuscous beyond the latter. *Elytra* pale yellow, covering about two-thirds of the abdomen, rounded at the apex, nerves with minute granules, marginal nerve, except round the pale yellow apex, white. *Sternum* yellow; *metasternum* on the sides with a black spot. *Legs* yellow, 1st and 2nd pairs somewhat dusky; *claws* black.

Abdomen yellow, sides slightly fuscous, base of the segments very narrowly, and three minute spots on each, blackish; these last characters are more or less distinct in different individuals: *genital segment* yellow, side of the posterior margin brownish-black in the middle; viewed from behind, there is a black spot on each side of the centre: styloid processes black; when viewed from above, they are seen to project outwardly, somewhat in the shape of a horse shoe.

Undeveloped form ♀.

Abdomen yellow, the three spots on the segments more or less distinct.

var. *fuscula*. *Elytra* fuscous-yellow, nerves darker, granules distinct. *Abdomen* dusky yellow, sides broadly fuscous-black, posterior margin of the segments across the back more or less fuscous-black, their extreme margin fuscous-yellow. All the remaining characters as in the other form.

Length, ♂, 1 line; ♀, 1¼—1½ lines.

This species stands immediately before *L. neglecta*, Flor, which it is extremely like; and, but for Flor not mentioning the *projecting* styloid processes, so very characteristic in this species, or the white marginal nerve of the elytra, also very distinct, and the different shape of the genital segment of *L. neglecta*, when viewed from behind, as figured by Fieber in the Verhand. d. k. k. zool. bot. Gesell., vol. xvi, t. 8, fig. 52, I should have referred it to that species without doubt.

I took both sexes at Wimbledon, in September last, but very sparingly. Mr. Douglas and I had each, some years ago, taken the ♀; but, as we could not reconcile it with any description, it has stood amongst our doubtful species until now.

Genus 6.—ACHOROTILE.

Head: crown quadrate. *Face* with two middle keels, parallel from the crown to within a short distance of the clypeus, where they approximate; the channels between the side and middle keels pustulate. *Antennæ* with the basal joint short, about three-quarters of the length of the second.

Thorax: pronotum with three keels, those on the sides not reaching to the posterior margin, but curved round outwardly, their inner margin pustulate. *Scutellum* with three entire keels; side keels diverging posteriorly, pustulate along their inner margin. All the other characters as in *Liburnia*, &c.

Genus 6.—ACHOROTILE, *Fieb.*

Species 1.—ACHOROTILE ALBOSIGNATA.

Delphax albosignata, Dahlb., k. Vet. Ak. Handl., p. 199 (1851); Stål, Öfvers., xi, 196, 31 (1854).

Delphax fuscinervis, Boh., k. Vet. Ak. Handl., p. 113 (1852).

Achorotile albosignata, Fieb., Verhandl. d. k. k. zool. bot. Gesell., xvi, 521, 15, t. 8, fig. 16 (1866).

Undeveloped form ♂.

Black, shining.

Head: crown yellowish-white, the three foveæ deep and distinct, the keels acute and prominent; two pustules on each side between the side and middle keels. *Face* dark brown or somewhat piceous on each side; in the channel between the side and middle keels are seven pustules, placed thus—three in a line with the eye, two next the clypeus along the outer margin of the middle keel, and two (the uppermost of which is almost in a line with the lower margin of the eye) along the inner margin of the side keel; along the side keels, towards their lower extremities, are also five pustules, similar in position to those along the middle keel. *Clypeus* and *cheeks* dark brown or piceous. *Antennæ* dark brown, 1st joint darkest.

Thorax: pronotum pitchy-black, with a broad yellowish-white streak down the middle, outer margin of the side keels with four pustules. *Scutellum* pitchy-black, with a yellowish-white streak down the middle; inner margin of the side keels with two pustules. *Elytra* pitchy-brown, shining, not covering more than the two basal segments of the abdomen, almost truncate posteriorly; nerves distinct, not granulated. *Legs* fuscous-black; *thighs*, apex whitish; *tibiæ*, 3rd pair, spines and apex whitish; *tarsi*, 3rd pair whitish, 3rd joint brown.

Abdomen black, shining, posterior margin of the 2nd and 3rd basal segments broadly white; *genital segment* above posteriorly somewhat brownish.

Length 1 line.

This insect may at once be distinguished from every other in the family by the pustulations on the head, pronotum, and scutellum, and the white margin to the basal segments of the abdomen, as pointed out.

I have made the description from a continental example of the undeveloped imago, presented to me by Dr. Stål, on the strength of six pupæ taken by J. C. Dale, Esq., near Bonchurch, in the Isle of Wight, in October. Both sexes are represented, the pupa of the female being orange-yellowish, with the two basal foveæ on the crown and two spots on the scutellum, black, and the sides of the elytra and abdomen more or less fuscous; that of the male being entirely fuscous-black. The pustules are present on the head and face as in the perfect insect.

There is but this one species known on the Continent, and which, according to Dahlbom, occurs in July.

Lee: *December*, 1870.

NOTES ON THE *LEPIDOPTERA* OF BRANDON.

BY CHARLES G. BARRETT.

It is a fact so well known to Entomologists that I need hardly recall it, that the sand-hills which, in many parts, line our coasts, form the almost exclusive habitat of many species of *Lepidoptera* (as well as of other orders), and that these species are seldom, if ever, known to wander inland, appearing unable to exist on any different soil. These species are so well known that I need not give a list of them, but pass at once to my subject.

Early last June, I met Mr. de Grey, by appointment, at Brandon, in Suffolk, for a raid upon the specialities of that celebrated district. The weather being propitious, we had, I think, the most glorious day's collecting I ever remember; but it is not of the rarities we captured that I desire now to speak, but of certain coast species whose occurrence in that inland locality is worthy of especial notice.

In the fields we found *Anerastia lotella;* from over-hanging grass roots at the railway side we dislodged *Gelechia marmorea* and *distinctella; Gelechia desertella* swarmed in hundreds among grass and stunted furze-bushes; and at flowers of sainfoin in the evening, we took several *Mamestra albicolon.*

Of these five species, four are well known as otherwise exclusively inhabitants of coast sand-hills, and the remaining one, *Gelechia distinctella,* is seldom found away from them, their occurrence all together then at this locality appears at first sight sufficiently astonishing.

Some explanation of it, however, is to be found in the fact that the soil consists of almost precisely such a loose sand as is found on the coast, a sand so loose, indeed, that a field ploughed on one day is often found perfectly smooth and level by the next morning, from the action of the wind in the night.

One of the most accomplished practical geologists in this county informs me that there is no doubt that this tract of country—which extends some miles — was actually a range of coast sands at a recent point of the Post-Glacial period, when the great valley of the fens was still submerged.

It is now, however, perfectly isolated, the nearest portion of sea being the Wash, more than twenty miles distant, while the eastern coast, with its fringe of sand-hills, is more than forty miles away; the intermediate country being in both cases of a totally different character, and utterly unsuited for the existence of the species in question.

Although the Post-Glacial epoch is, I believe, comparatively a very recent one, the actual length of time which has since passed is so great, that I presume few geologists would venture to compute it even in thousands of years. And although there has evidently been considerable oscillation of the land during the subsequent period, the deposits of gravel, &c., in different parts of the fen valley, indicate that fresh water agencies were at work, and that the sea had not the same action on the old coast line, since the later Post-Glacial period. This view is confirmed by the absence of marine shells in these deposits, while the immense lapse of time is further shown by the presence of an abundance of a fresh-water shell (*Cyrena flumenalis*) imbedded in them, although the species has now totally disappeared from the seas of the north of Europe, and is not known to occur nearer than the mouth of the Nile.

The occurrence of these coast sand-hill insects on this ancient sea-shore is therefore a circumstance of considerable interest, particularly as they appear to be by no means rare there (indeed, *Gelechia desertella* is most abundant), and the question naturally arises how they reached so congenial a spot.

The intermediate answer to be expected is "by migration," and theories in plenty instantly crop up of chance specimens carried the whole distance by winds. A moment's consideration of the habits and structure of most of these species, however, shows such a solution to be utterly untenable. Whatever the strong *Mamestra albicolon* might do, it is very unlikely that it would allow itself to be carried by any wind across two miles of country, far less twenty; while we all know how carefully the weak *Anerastia lotella* and the lively little *Gelechiæ* avoid exposing themselves to a breeze, and that they will never move on the wing except in calm weather, or good shelter. Moreover, the "blown across" theory can only hold good over a level surface like the sea, and in the case of strong insects, such as butterflies, which, provided the sun be shining, will brave a considerable amount of wind, but over a country covered with scattered trees, with occasional hills and other inequalities of surface, the disturbing currents caused thereby would inevitably precipitate all such matters to the ground, or enable them to reach it.

Ordinary migration of species cannot be accepted as a solution of the difficulty, since, as I have already stated, the intermediate country is utterly unsuitable for the existence of these sand-loving insects. It consists of fen, wood, heath and cultivated country. The heaths are sandy tracts as a matter of course, and I am informed that there are considerable tracts of green-sand on the side of the county bordering the fen valley, but this formation in other parts of England is found no more favourable to coast sand-hill insects than any other.

As nobody will, I suppose, venture to suggest that there has been a special creation for this little spot, the only reasonable conclusion to be arrived at, in my opinion, is, that these species have occupied this suitable ground from the time of the close of the Post-Glacial period, at least, and previous to the upheaval of the present fen valley, and that they have remained unchanged in form, and even in colour, through the many conditions of life comprised in so long a period, and in particular that of the change from the saline influences of a neighbouring sea, to those of a warm inland district.

One slight change of habit is apparent, due doubtless to the higher temperature. All these species were out on June 4th, *desertella* in swarms, and a week later *lotella* was common, and *albicolon* getting worn, while at this latter time *albicolon* and *desertella* were just beginning to come out at Yarmouth, and the other species were not to be found till a fortnight later, July being their time of appearance on the coast.

Since this subject has occupied my attention, I have received some valuable confirmatory evidence. Mr. de Grey informs me that he has taken *Agrotis cinerea*, *Gelechia vilella*, and *G. pictella*, at Brandon, and *G. marmorea* on a portion of the Merton estate to which this drift sand extends. The Rev. H. S. Marriott of Wickham Market, and Rev. H. Williams of Croxton, report, not only *Mamestra albicolon* and *Anerastia lotella*, but also *Eubolia lineolata* and *Agrotis valligera* occurring commonly on the sands round Thetford, the former on grassy heaths and the latter flying over lucerne fields. And, in addition to all this, I hear from Henry Stevenson, Esq., F.L.S., author of "The Birds of Norfolk," that a colony of the Ring Dotterel (*Charadrias hiaticula*), a bird which breeds exclusively on coast sands, has bred upon Thetford Warren from the time of the earliest records, and was then immensely more numerous than within the last fifty years; and that it is his opinion, and that of Professor Newton, from their knowledge of the habits of some birds, and the persistency with which they return to breed in the place where they were reared, that these Ring Dotterels have occupied the same spot in uninterrupted succession from the time when the Thetford and Brandon sands lay on the shore of the Post-Glacial sea until the present day.

There is an interesting point which I have not touched upon.

Many of the insects that I have mentioned belong to large genera of closely allied species (*Mamestra*, *Agrotis*, *Gelechia*), genera such as have been pointed out as the most likely to produce new species by natural selection. These species, however, in spite of their isolation and alteration of condition, are as true, and as clearly defined, as those of our present coast.

It is also interesting to know that this same tract of sand is the home and almost exclusive habitat of several species not known as attached to sea sand-hills, and seldom or never met with in any other part of the United Kingdom. Among these, I may mention *Acidalia rubricata*, *Lithostege griseata*, *Agrophila sulphuralis*, *Spilodes sticticalis*, *Oxyptilus lætus*, *Eupæcilia anthemidana*, and *Tinea imella*, all of which figured conspicuously in the glorious day's collecting mentioned in the beginning of this paper. The food-plants seem to have nothing to do with this partiality, as *Sisymbrium Sophia*, *Convolvulus arvensis*, and *Erigeron acre*, for instance, are common enough in most places.

Norwich: 14*th December*, 1870.

ADDITIONS AND CORRECTIONS TO THE LIST OF BRITISH *SYRPHIDÆ*, WITH A DESCRIPTION OF ONE SPECIES NEW TO SCIENCE.

BY G. H. VERRALL.

In the January number of this Magazine for last year (vol. vi, pp. 173—176), I published a list of our indigenous *Syrphidæ*, and then stated that I believed it very imperfect. During the past year I have added several species and two new genera, and have also noted a few corrections of synonymy.

1. *Pelecocera tricincta*, Meigen: I have seen a female of this interesting species, belonging to Mr. J. C. Dale, which was captured near Bournemouth. The insect resembles a *Sphærophoria*, but is easily distinguished by its remarkable antennæ.

2. *Didea alneti*, Fallen: the asterisk may be removed from this species in my list, as Mr. J. C. Dale possesses a specimen from Scotland.

3. *Syrphus seleniticus*, Meigen: I have for a long time possessed an old specimen of this, probably British, but I know nothing of its history; it should be common in England, being found all over the continent, extending even from Sweden to Gibraltar and Madeira, along with its close ally *pyrastri*.

4. *Syrphus venustus*, Meigen: Walker says of this, "generally distributed," but I purposely omitted it from my list, as I could not find it in any collection; I have since seen a specimen (♂) in Mr. N. Cooke's collection, and which I believe is of this species.

5. *Syrphus cinctus*, Fallen: Walker says of this also, "generally distributed," but all I could find were *cinctellus*, Zett.; I believe I have since seen the true *cinctus* in Mr. Marshall's collection, but in bad condition, so that I feel some doubt about it.

6. *Melanostoma barbifrons*, Fallen: Mr. B. Cooke possesses this species, and sent me two males to name.

7. *Platychirus melanopsis*, Loew; 8. *P. scambus*, Zett.; 9. *P. angustatus*, Zett.; and 10. *P. podagratus*, Zett.; I recorded in the number of this Magazine for last November.

11. *Chilosia nebulosa* (n. sp.): *tota flavo-hirta;* oculis hirtis; epistomate nudo, descendente; antennis rufo-flavis, apice fuscis, seta nuda; scutello pilis nullis nigris; pedibus luteis, femoribus fere ad apicem, tarsisque apice, nigris (tibiis annulo obscuro ♂); *alis nebulosis* (long. 3¾—4 lin., alar. exp. 8 lin.) ♂ ♀.

This species comes at the end of the group containing *grossa*, &c. Its nearest ally seems to be *pictipennis* of Egger, which, however, is considerably larger (5—5½ lines), and on the abdomen of the male of which the two basal segments are clothed with abundant pale yellow hairs, but the rest with deep black hairs. Egger also describes the tarsi as brown in the male and dark yellow in the female; whereas in *nebulosa* the pubescence is *all* reddish-yellow, and the tarsi of the male are luteous, the two last joints and the hind meta-tarsus being rather obscure; in the female the four basal joints of the tarsi are reddish-yellow, the fourth joint of the hind pair being rather obscure. Egger also speaks of the wing in *pictipennis* as being spotted rather than clouded. The female of *pictipennis* has the two basal segments of the abdomen dark metallic-green, the others shining black, while in *nebulosa* the abdomen of the female is all shining blackish. The other characters of the male of this species are as follows: the epistoma is black, not very shining, with but little tomentum, except in the hollow beneath the antennæ; the eye-margins are sharply defined, rather broad, with a distinct fringe of pale hairs; in profile the *front* is inflated, the epistoma very slightly hollowed beneath the antennæ, then rather gradually produced to a small knob, the upper and lower angles of the mouth being almost equally produced; the cheeks are rather large, greyish-yellow; the lower part of the back of the head is rather inflated and clothed with deep yellow hairs; the vertex and *front* are clothed with abundant, rather long, yellow hairs, the *front* having also considerable tomentum on the sides and a faint middle channel; the antennæ are blackish at the base, the third joint moderately large, rounded, reddish-yellow, with the tip brown, arista pitchy, bare, thickened at the base; thorax and scutellum shining æneous, thickly and regularly punctate, clothed all over with abundant, rather long, deep yellow hairs, *no* black hairs being intermixed even round the edge of the scutellum or on the sides of the thorax; alulæ whitish-yellow; halteres luteous, tip of the knob brownish-black; abdomen black, with its edge considerably recurved, dull and roughened on the second, and disc of the third, segments, moderately and regularly punctate on the shining, rather æneous, fourth segment; the pubescence is rather abundant, all reddish-yellow; legs black, the tibiæ, the tarsi, and the tip of the femora luteous, the tibiæ and tarsi marked as I have mentioned above; the hind meta-tarsus is large and long, but very slightly dilated; the femora have a tolerably abundant pubescence, and there are sometimes some black hairs intermixed with the luteous ones behind the front pair, and there are also (as in many other species) short black bristles beneath the hind femora: the wings have a strong yellowish tinge along the costa and about the base, the veins being yellow, except at their tips, the transverse veinlet is very distinct, dark brown, and across the lower transverse vein let and base of the cubital vein is a slight dark band, and a slight dark blotch or cloud near the end of the cubital cell. In the female the eyes are rather thinly hairy; the pubescence is altogether shorter and less conspicuous; the *front* is broad, with three longitudinal channels, the middle one being faintest, and just below the middle is a distinct transverse channel; the antennæ are rather larger, altogether reddish-yellow; the abdomen is more elliptical.

This species was captured by Mr. J. H. A. Jenner in some numbers in Bathurst Wood, near Battle, Sussex, in April. The males fly about in the rides, high up in the air, like *C. flavicornis* ♂; the females, of which Mr. Jenner only took one, are lower down on the shrubs, &c.; I have likewise seen a female in Mr. W. C. Unwin's collection, and which was also probably caught in Sussex.

12. *Chilosia longula*, Zett.: Mr. B. Cooke sent me this species to name, and Mr. J. C. Dale also possesses it; it has not previously been taken out of Sweden, whence Zetterstedt records three specimens. It is one of the bare-eyed, black-legged group, but is distinguished by the pale knees and smoky-black alulæ.

13. *Helophilus frutetorum*, F.: the asterisk may be removed from this in my list, as Mr. Marshall possesses a New Forest specimen.

14. *Xylota abiens*, Meigen: when I published my list I had seen only one spotted species of *Xylota;* but Mr. Cooke having sent me specimens of two others, I found that the one I possessed (though named *nemorum* by Loew) was *X. abiens* of Meigen, known by its smaller size, by the short spine on the hind trochanters of the male, by the thick (not very thick) hind femora, and the bluish hue often visible on the abdominal spots; I captured a pair at Abbott's Wood in Sussex, on June 28th, 1867, and Mr. Cooke has a male and Mr. Dale a female.

15. *X. florum* is rather larger (5 lines against 4½), the male has also a short spine on the hind trochanters, the hind femora are comparatively thin, the pubescence all down the edge of the fourth abdominal segment is whitish, and the base of *all* the tibiæ is distinctly yellow. Of this, Mr. B. Cooke possesses a pair, and Mr. Marshall one very dark female, labelled Keswick. *Xylota nemorum*, F. is allied to the two above mentioned, but is distinguished by the unarmed hind trochanters of the male (proving it to be *florum* of Zetterstedt), by its short, stout appearance, by the squarer abdominal spots (proving it to be also *bifasciata* of Meigen), and by the thick hind femora (thickest of all the three); Mr. B. Cooke and Mr. Marshall possess the species.

16. *Plocota apiformis*, Schrank: this species and genus can hardly be considered new to our lists, considering it is figured by Moses Harris from a British specimen; it has, however, never been recorded since. Mr. J. C. Dale possesses a specimen. The species seems sparingly scattered all over Europe.

17. *Eumerus litoralis*, Curtis, is only a synonym of *sabulonum*, according to a specimen given me by Mr. J. C. Dale.

18. *Orthoneura brevicornis*, Loew: there was a male of this among some *Diptera* given me by Mr. D'Orville of Exeter.

19. *Pipiza vana*, Zett., is only the male of *noctiluca;* I caught both together abundantly at Rannoch last year.

In addition to previous synonymy, I believe *Platychirus quadratus* of Macquart is only *scutatus*, and his *dilatatus* only *peltatus;* I agree with Malm in considering *Pipiza carbonaria* and *stigmatica* of Zetterstedt to be only small varieties of *P. noctiluca* ♂; *Tropidia dorsalis* of Macquart does not seem to have any distinguishing character from *T. milesiformis*, as the difference in the form of the epistoma, which he relies upon, seems but very slight, and probably accidental.

I possess several other species, principally from Rannoch, not yet sufficiently identified to bring forward; the present paper, however, adds fifteen species to my previous list, confirms two doubtful ones, and excludes two, making the present number of species 179, five of which still remain doubtful.

The Mulberries, Denmark Hill, London, S.E.

Analysis of Thomson's "Opuscula Entomologica," Fascc. i *and* ii.—Since the completion of his very able work on Scandinavian Coleoptera, C. G. Thomson has commenced the publication of a series of papers on Swedish insects of several orders, under the title of *Opuscula Entomologica.* Except that they are confined to the Scandinavian fauna, these much resemble in their scope Mulsant's well known "Opuscules." Two fasciculi have already appeared, consisting together of 304 pages, and containing fifteen papers; the first fasciculus bears the date of 1869, the second of 1870. As the contents of these fasciculi are of the greatest interest to British entomologists, a short account of them will doubtless be acceptable to the readers of this Magazine.

The first paper is on the genera of Swedish bees; 27 genera are characterized, of which several appear to be new, but as no authors names are attached to any of them, I can give no further particulars. The second paper is on the *Corixæ* of Sweden; 24 species are described, of which six are new; no reference is made to any of Messrs. Douglas and Scott's species, and it is probable that some, at any rate, will prove to be identical with these. The third paper describes the six Swedish species of the genus *Cœlioxys*; four appear to be identical with British species. Next comes a paper describing the Swedish species of *Iassus;* 72 species are described, three being considered new. The fifth paper describes the genera and species of Swedish *Vespariæ*, both the social and solitary wasps being included under this name. No less than 22 species of *Odynerus* are described, and of this number the author appears to consider eight as previously undescribed. The sixth paper is also devoted to the *Hymenoptera*, and describes the species of *Epeolus*, *Nomada*, and *Sphecodes*. Of the first, two new species are described; and of *Nomada* six, and of *Sphecodes* four, novelties are brought forward. The seventh paper describes the genera and species of the Linnæan genus *Chrysis;* six genera and 28 species are treated of, the new species in this case are two in number, and belong to the modern genus *Chrysis.* Then comes a paper for the dipterist, describing the Swedish species of *Pipunculus*, 25 species (three new) are given. The ninth paper enumerates species of *Coleoptera* new to the Swedish fauna: these are *Bembidium Clarkii*, *Haliplus transversus* (n. sp., near *fluviatilis*)*; Ilybius ænescens*, hitherto confounded with *guttiger*, Gyll.; *Anacæna carinata*, n. sp. (=*variabilis mihi*)*; Philonthus lucens*, *Heterothops nidicola*, n. sp., *Stenus glabellus*, n. sp., separated from *carbonarius*, Gyll., *Cyphea curtula*, *Atheta incognita*, *A. vilis*, *A. atomaria*, *A. palleola*, *A. canescens*, *A. ischnocera*, n. sp., *A. glabella*, n. sp., *A. lævana*, *Tachinus proximus*, *Choleva cisteloides*, *Trichopteryx fucicola*, *Cis puncticollis*, n. sp., *Trachys pygmæa*, *Orthopleura sanguinicollis*, *Dasytes rugipennis*, *Dircæa 4-guttata*, and *Bagöus angustulus*, n. sp. The tenth paper describes the Swedish species of *Andræna*, thirty-nine in number, whereof six are new. The eleventh paper treats of Swedish *Crabronidæ*, four novelties in the genus *Crabro* being described. The next article is a monograph of the Swedish species of *Lygæus*; these are 57 in number, of which Thomson considers five new. The thirteenth paper is devoted to *Hymenoptera*, and describes the genera and species of Swedish 'Rofsteklar' (fossorial *Hymenoptera*)*:* two new species of *Pompilus*, two of *Pemphredon*, and one of *Tachytes* are brought forward. Then come descriptions of the Swedish *Bombi* and *Apathi*, the former 21 in number (one new), the second five. The fifteenth and last paper is a revision of the genera and species of Swedish *Tenthredinidæ;* among their number several novelties are enumerated.

It will thus be seen that the work, as far as it has hitherto gone, is of the greatest interest to the students of our entomological fauna; and containing, as it does, a great deal of original matter, it indicates a vast amount of research on the part of the author, and a thorough acquaintance with insects of various orders, very rare at the present time.—D. SHARP, Eccles, Thornhill, Dumfries, *January*, 1871.

Alterations in nomenclature of Hydroporus; &c.—I propose to change the name of the *Hydroporus* described by me as *H. parallelus* (Ent. Mo. Mag., vi, p. 84), to *H. longicornis*; the name *parallelus* having been already used once or twice in the genus *Hydroporus*.

The *Dytiscus melanocephalus* of Marsham (*Hydroporus melanocephalus* of Stephens) not being the *melanocephalus* of Aubé and modern authors (*vide* Wat. Cat.), two changes in name are unfortunately necessitated: the synonymy below will explain them.

1. *H. melanocephalus*, Marsh., Steph.
    pubescens, Gyll.
2. *H. scaphiformis*, Mihi.
    melanocephalus, Gyll., Aubé, Thoms.

In my remarks upon *Trogophlœus bilineatus* in the last No. of this Magazine, I inadvertently wrote *obesus*, instead of *obscurus*, for the Stephensian species quoted by v. Harold.—ID.

Additions, &c., to the list of British Coleoptera.—

PEDIACUS DEPRESSUS, Hbst.; Er., Ins. Deutschl., iii, p. 311. Of this most interesting and curious species, Mr. John Ray Hardy, of Hulme, Manchester, has taken eight examples, out of chinks of very rotten oak, in a yellowish, minute, dusky fungus, like mould; five near Knutsford Park, Cheshire, on 29th July, and the other three near Stretford, on the Cheshire side of the river Mersey, on 5th August last. It is immediately distinguishable from *P. dermestoides* by its lighter colour, more shining appearance, narrower shape, longer thorax (of which the lateral teeth are more pronounced, and the 4th or posterior denticle is situated considerably *above*, instead of actually *at*, the hinder angle), more evident and less close punctuation, more evident frontal depression, stouter legs, and longer antennæ, of which the third joint is especially longer in proportion.

I have also recently received *Pediacus depressus* from Mr. Wollaston, who found a few specimens of it (in company with *Cryptophagus dentatus*, *Corticaria serrata*, &c.) amongst stores of unquestionably British produce, on board Mr. Gray's yacht last year,—one example having been found in Dartmouth harbour. It is curious to observe how readily the species of *Cryptophagus*, *Læmophlœus*, *Silvanus*, and *Pediacus* make themselves at home in such widely different habitats as stores of food in houses, and the bark of forest trees.

LÆMOPHLŒUS PUSILLUS, Schön. Mr. J. Ray Hardy has during the past autumn taken this species out of filbert nuts, Sheffield Wood. It is, I believe, usually considered doubtful as a truly British insect,—at all events as on the same level as *Trogosita*, *Bruchus pectinicornis*, &c. Its quadrate thorax and the very long antennæ of its male readily distinguish it from its allies in this country.

CRYPTOPHAGUS SCHMIDTII, Sturm; Er., *l.c.*, p. 350. A single example of this fine species was taken by Mr. G. C. Champion about the middle of August last, at Wicken fen, in stack refuse. On account of its large size and long pubescence, *C. Schmidtii* is only compared with *C. lycoperdi* by Erichson; but those who, like myself, have hitherto examined all the specimens of the latter insect that have come to hand, in the hope of detecting *Schmidtii* among them, may for the future save themselves that trouble, as the facies of the two species is utterly dissimilar, *C. Schmidtii* having the longer antennæ and posteriorly more contracted elytra of *setulosus*, and the toothless, obtuse, flattened, thoracic anterior angle of *saginatus*. Mr. Champion's specimen (which agrees well with continental *Schmidtii* from Märkel in the Brit. Mus. coll.) is a large one, 1½ lin. (Engl.) in length, quite as large as ordinary *lycoperdi*. Putting aside *lycoperdi* (if only on account of the sharp tooth at the outer apex of its tibiæ which separates it from *all* its congeners, and of its small sharp anterior thoracic denticle), *C. Schmidtii* can only be confused with *setulosus*, from which its rather larger size and less broad build, the less transverse sub-apical joints of the club of its antennæ, the lesser development of its thoracic anterior callosity and lateral denticle, and the punctuation of its elytra not being disposed to run in striæ, will serve to distinguish it.

It may not be out of place here to observe, that, amongst some beetles very recently sent to me for determination by Mr. J. Kidson Taylor, is a specimen of *C. lycoperdi* of exactly one English line in length. My largest example of that species rather exceeds 1½ Engl. lines; and Erichson gives a latitude (or rather longitude) of from 1¼ to 1⅓ lines for it. Considering the greater length of the German line, Mr. Taylor's specimen must, I think, be considered as extraordinarily small. As a matter of course, *lycoperdi* would be about the last species to which one would think of referring it, *primo visû*.

DASYTES OCULATUS, Kies. Mr. J. Ray Hardy has obtained this species by beating oaks in Sherwood Forest during July and August last; and I have a ♀ taken by myself in the London district. There are also some examples of it taken at Sherwood, among the insects above referred to as sent to me by Mr. J. K. Taylor. In addition to the characters of larger eyes in ♂, and *two* testaceous basal joints of the antennæ and testaceous anterior coxæ in ♀, referred to in Ent. Ann. 1871, I may observe that this species may be known from *D. plumbeus*, Müll. (*flavipes*, Wat. Cat.), by the reticulations of its eyes being coarser, its tibiæ not being of so bright a yellow, its tarsi (and especially the basal joints) being longer, the depression between its eyes being more sharply defined, the punctuation of its elytra being not so close, and its generally more shining appearance.

THYAMIS RUTILA, Illig.; Allard, Mon. Alt. (L'Abeille), p. 235. This species has been introduced into our lists (as I have satisfied myself by an inspection of the leading collections in which it is supposed to exist) on the authority of red specimens of the common *T. jacobææ*, Waterh. (*tabida*, Auct.), from which it differs, amongst other less important characters, in its much stronger and more evident punctuation, which on the elytra is disposed in striæ near the base. Mr. Moncreaff has taken several specimens of what I believe to be the true *T. rutila*, by sweeping dried *Mentha aquatica* near Southsea, during the months of November and December; and it is to a large, old, disguised, discoloured and broken example of these that the insect referred to by that gentleman at p. 155 of the present Vol. as *T. agilis*, Rye, must be attributed. I am answerable for this error, as I so named that example, though with a reserve of doubt, on account of apparent discrepancies between what remained of its (too slender) antennæ and those of *T. agilis*. The sight of additional specimens has entirely justified my doubt: indeed, the bright red colour of the Southsea species is quite enough (without the structural differences) to separate it from my *agilis*.

Allard mentions *Scrophularia aquatica* as the food-plant of *T. rutila*; but, from the time of year at which Mr. Moncreaff's captures were made, it would be impossible to say on what plant his insects had fed up.

THYAMIS CERINA, Foudras; All., *l.c.*, p. 154. I have in my cabinet a *Thyamis*, taken by myself in the London district, which I attribute to this species. It is rather smaller than *T. ballotæ*, which it considerably resembles, and from which it differs in being ferruginous-red beneath (instead of black), and in having the punctuation of its elytra confused (instead of being disposed in tolerably distinct striæ near the base) and not quite so strong.

TRIMIUM BREVIPENNE, Chaud. Thanks to the liberality of Mr. Lawson of Scarborough, who has kindly sent me many specimens of *Trimium*, I am enabled by personal experience to corroborate the somewhat doubting record of this species in Ent. Annual for 1870. Of Mr. Lawson's captures in 1869, about two-thirds seem to be *T. brevipenne*, and one-third *brevicorne*; and, from the former being so small and tender that they would not bear setting, he came to the conclusion at the time that they were an immature condition of the latter. It may be worth while to repeat here that *brevicorne* (which has occurred to Mr. Waterhouse at Bishop's Wood) is the larger and darker of the two, with decidedly larger eyes, and rather longer elytra, which are rounded comparatively abruptly at the shoulders, the rounding in *brevicorne* commencing almost directly from the hinder apex of the wing-case. There is also a *very* slight difference in the hinder margin of the elytra, which is apparently less evidently indented just before each outer angle in *brevipenne*.—E. C. RYE, 10, Lower Park Fields, Putney, S.W.: *January*, 1871.

Note on possible double-broods of Thyamis.—Is it known for certain if any of the species of *Thyamis* are double-brooded? All those with which I am acquainted leave the pupa in autumn, hybernating as perfect insects; and their resulting larvæ feed through the spring and summer. Now, unless *T. jacobææ* be double-brooded, I cannot see how the *small red* specimens which I get at Hayling Island from November to May, and the *larger pale* specimens which I get on Southsea Beach from June to September, can be properly attributed to one species; and yet I do not doubt but that both are *T. jacobææ*.—H. MONCREAFF, 9, Wish Street, South sea, *January*, 1871.

Duration of the larval state in Eros.—I have just bred another *Eros affinis* from Killarney. It is now five years since I took the larvæ, seven in number,—from which I have succeeded in rearing five of the beetle.—JOHN RAY HARDY, 118, Embden Street, Hulme, Manchester, *January*, 1871.

Note on the occurrence in Britain of Corizus Abutilon, Rossi, a species of Hemiptera-Heteroptera new to our lists.—In the middle of July last, I captured a single specimen (♀) of *Corizus Abutilon*, Rossi, by sweeping mixed herbage on the coast at Deal, Kent.

A description of the above species will shortly be published in this Magazine.—G. C. Champion, 274, Walworth Road, London, S., *January 13th*, 1871.

Notes on the Hemipterous genus Halobates.—In trimestre iii (anno secondo) of the Bullettino della Soc. Ent. Italiana, is an interesting notice (pp. 260, 261) on this oceanic genus of *Hemiptera*, by Professor Enrico Hillyer Giglioli, who was attached to the Italian war-ship "Magenta." His notes are summarised as follows:—

"First took *Halobates* in the South Atlantic on the 29th December, 1865, in lat. 16°. 11′. S., long. 36°. 00′. W. (Paris), at about 400 miles from the South American coast. On the following day took others, but not commonly. In May, 1866, more were found in the Straits of Banca, in the gulf of Siam, and in the vicinity of the island Pulo Condor, when the ocean was covered with broad tracts of *Trichodesmium*. On the 10th February, 1867, we again entered the Indian Ocean, in which *Halobates* was found most abundantly, from the 12th, lat. 11°. 33′. S., long. 106°. 40′. E. (Greenwich), to the 17th, lat. 14°. 59′., long. 105°. 48′., between which limits the sea was spread with flakes of *Trichodesmium*. In traversing the Pacific we again found the bug abundantly, some hundreds of miles from the American coast, from the 29th August, in lat. 26°. 27′. S., to the 6th September, in lat. 29°. 21′. S. Finally, it was found on the voyage home in the Atlantic (January, 1868), first in lat. 26°. 38′. S., secondly in lat. 4°. 28′. N. From a not minute examination of the specimens all seem to pertain to one and the same species. I conclude by stating that this insect, spread over all the tropical seas, certainly does not use sea-weed to sustain it on the water, as Coquerel supposed. It was not seen in the 'Sargasso-sea,' and the *Trichodesmium* is certainly not sufficient to float it. A rich series of individuals from different localities is deposited in the Museum of Turin."

These notes have a peculiar interest for me as exciting reminiscences of a voyage of 13 months' duration I made when a youth, in 1855-6. This voyage was marked by a most immoderate amount of calms (in one case extending to 30 consecutive days in the hottest part of the China Sea), and I lost no opportunity of fishing up—and I am sorry now to say, casting away—the, to me, wonderful forms always floating around. Long before crossing the line, on the outward voyage, I was struck by small whitish creatures which often appeared, coursing with great rapidity over the surface of the ocean; at length one was captured, and I well remember my astonishment on finding it was a spider-like insect, of the affinities of which I then knew nothing. They disappeared, or rather were lost to view, as soon as a breath of wind caused a ripple on the surface, but were common in that most unpleasant form of sea-disturbance in which there are great "smooth" waves, the effect of a recent storm, but with no present wind. In the Atlantic, Indian, and Pacific Oceans, it only needed the required state of the sea to bring these merry coursers to view, and certainly often without the presence of the smallest piece of floating sea-weed. Those who have voyaged, will bear me out when I say that, excepting in the mysterious Sargasso-sea, in the course of the oceanic currents, and in the vicinity of land, sea-weed may be looked for with as much chance of finding it as daisies. I should here state that the brilliant white appearance of the insect on the ocean is caused by the pellicle of air that surrounds it, the creature itself being blackish. If these notes should be read by any one of those "who go down to the sea in ships," I would remind him that, if he can throw any light upon the life-history of this most wonderful insect (how many species there may be I know not), he will confer the utmost benefit upon natural science. The *Trichodesmium* alluded to by Giglioli is a minute confervoid plant, which sometimes covers the surface of the ocean like fine saw-dust.—R. McLachlan, Lewisham, *November*, 1870.

Occurrence in Britain of Neuroterus ostreus, Hartig.—

Cynips ostria, Hartig, Germ. Z. f. Ent., ii, 207 (1840); Kirschner, Lotos, v, 204 (1855); errore typ. "*astria*."

Neuroterus ostreus, Giraud, V. d. Zool-bot. V. z. Wien, ix, 350 (1859); Schenck, Beitraege, 68, 72, 105 (1865); Kaltenbach, Die Deutsch. Phytophagen, 66 (1867); v. Schlechtendal, Stettin. Ent. Z., Vol. xxxi, 386 (1870).

In introducing the present species into the British Catalogue, I recapitulate that the Rev. T. A. Marshall has described four others in Vol. iv of this Magazine (pp. 124—126, and 147), namely, *N. Malpighii*, *fumipennis*, *Réaumurii*,* and *politus*.

Instead of attempting to redescribe *N. ostreus* from German and British types, bred by myself, I give Dr. Giraud's description *in extenso*, as in my opinion it is quite sufficient to identify even captured specimens.

"*Niger, nitidus, vix pubescens, ore, squamulis pedibusque rufo-testaceis; coxarum basi nigrescente; thoracis dorso subtilissime punctulato. Ant.* 15 *artic.*

♀. *Long.* 2 *mill.*

"Le sommet de la tête et le dos du thorax sont luisants, mais néanmoins on y distingue un pointillé tres fin et peu serré; ce dernier est de plus marqué de quatre sillons très superficiels et peu distincts. Les antennes sont entièrement noirs, minces, et de la longueur du corps. Les pattes sont d'un testacé rougeâtre, avec la base ou la plus grande partie des hanches noirâtre. Les nervures des ailes sont minces et brunes."

As will be seen by the foregoing characters, the insect belongs to Mr. Marshall's "Section I. Sutures of the mesonotum *not* invisible."

Like the other three British species (so far as ascertained) resembling it in the sculpture of the mesonotum, viz., *N. Malpighii*, *fumipennis*, and *Réaumurii*, it is a true gall maker. I have met with its gall in this neighbourhood for successive seasons on the under-side of the mid-rib of leaves of *Quercus pedunculata* and *sessiliflora*, and in a few cases on well developed side ribs. The females, appearing in June from hybernated galls, oviposit in the mid-rib, where a brownish spot marks the locality of the isolated egg. Subsequently, the skin of the rib thus operated upon bursts and discloses a minute egg-shaped or kidney-shaped half solid gall, which is at first green, then yellow, and, when ripe, speckled with red or brown spots. Some oval specimens are close imitations of miniature birds' eggs. From August to October these monothalamous galls ripen, and then drop out of their thin skinny valves. Of course, the name of the insect refers to the distant resemblance of its larval home to an oyster. The larva feeds on the soft inner pulp of the gall, and its full-fed state is generally attained soon after the fall of the gall.

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* *Neuroterus Réaumurii* is the insect which has been called *Neurobius* in a letter written by my late friend Mr Wm. Armistead (Newman's "Entomologist," iv, p. 28). Having at the time supplied this gentleman with the correct generic name, I feel bound to over-rule this slip of his pen, as it has crept into the "Zoological Record" for 1868, p. 304, which might lead some continental Entomophilus to think that apparently nobody in England cares a "button" for the name of a *Cynips*, the silky gall of which is of gastronomic interest as part of the food of the dainty pheasant.—A. M.

A large number of hybernated galls shaken from oaks, near Shirley (6th September, 1868), into an inverted umbrella, produced a few females in the first and second week of October following; several of the remaining larvæ hybernated and cut out their way as perfect insects (♀) in May and June, 1869. The other sex I have not yet bred. After being left by the insect the gall is reduced to a mere shell of a thin, semi-transparent, papery substance.

The geographical range of this *Neuroterus* seems to be very extensive, as it accommodates itself to *Q. pedunculata*, *sessiliflora*, *pubescens*, and probably to other oaks as well. It has been recorded from Nassau, Halle, Berlin, Freiberg, Zwickau, Kaplitz, Vienna, &c., and I have collected its gall in several localities in the Black Forest and in the Swiss Jura. Of its distribution over Great Britain I am at present profoundly ignorant.—ALBERT MÜLLER, South Norwood, S.E., *December 16th*, 1870.

Note on an oak-gall.—At page 39 of your Magazine for July last, Mr. Müller has stated that I call a certain unformed swelling of the ribs of the oak-leaf the *kidney-shaped gall.* This is an error. The *gall* is not *kidney-shaped*, but the case it contains being reniform it suggested to me the name of *kidney gall.*

At page 157, December, 1870, Mr. Müller has corrected his error at my request, but in such a manner as to give the idea that I had changed the name, which I trust I now have shown is not the case. Such distinctive names as this I have found a great convenience in the absence of a knowledge of the insects; but scarcely intended them for publication.—H. W. KIDD, Godalming, *January 10th*, 1871.

Erroneous record of the capture of Deilephila livornica in Perthshire.—I regret to say that the notice of *D. livornica* in Perthshire (p. 139) is erroneous. I was told, on what I believed good authority, that the insect was *livornica;* but, having lately had an opportunity of seeing the specimen, I find it is only *galii*. In the same collection I noticed *Cucullia chamomillæ*, a species which I think has not previously been taken here.—F. BUCHANAN WHITE, Perth, *December 20th*, 1870.

A life-history of Ptilophora plumigera.—I am glad to take this opportunity of acknowledging my obligation to the Rev. Bernard Smith, for his kindness in furnishing me, from time to time, with a great variety of subjects for my pencil, as well as for the repeated supply of eggs of *plumigera*, in 1869 and 1870, by means of which I have been enabled to work out the transformations of this rare and local species.

The eggs are laid in November, either singly, or in little groups of two or three together, on the young *brown* shoots of *Acer campestre*, to which they assimilate well. The shape of the egg is like a conical button, being of a blunt-topped obtuse cone, rounded off a little towards the broad base, and a little depressed beneath; sometimes it is not quite regular in shape, and the top, instead of being just in the middle of the upper surface, is nearer one side than the other: as to its colour, there is generally on the rounded apex a circular whitish spot, surrounded by a broad ring of deep russet-brown, then comes a narrow ring of pale brown or dingy flesh-colour, followed by another broad one of the dark brown or russet, its lower edge darkest and crenulated, and the lower part of the cone, as well as the base, is of a pearly-whitish tint; sometimes the central spot and the zones are not so distinct, but the whole colouring is of a paler brown, and more diffused: the egg does not change colour till just before the exit of the larva, when it becomes a little paler; and a small hole on the upper surface, or on the side, is the only evidence of the larva having escaped from it. The hatching takes place generally from about the 15th to the 25th of April, though this year I found it begin on the 13th and continue to the 20th.

The newly-hatched larva is about one-eighth of an inch in length, of a very pale greenish-ochreous tint, covered with long, silky, curved, whitish hairs. These little fellows feed at first on the buds of the maple, and their delicate tint matches exactly that of the enveloping sheath of the bud; by the time the buds have begun to burst, the larvæ have moulted, and are no longer so hairy looking, though some few hairs remain. Early in May, when the crumpled young leaves are unfolding, the larva has undergone a further change; it has now a naked and smooth shining skin, is about half-an-inch in length, and its colour is a yellowish pellucid-green, rather deeper on the back, the spiracular region and belly whitish-green; the sub-dorsal pale yellow stripe is already conspicuous on each side of the back, and fine twin lines of the same colour run along the spiracular region: at this stage the larva takes up its characteristic position on the under-side of the leaf, where it reposes in a sort of curved posture, with the head bent round on one side towards the fifth or sixth segment of the body, on the plane of the leaf. By about the second or third week in May, according to the character of the season, the larva attains three-quarters of an inch in length: at this time the back, between the sub-dorsal opaque white stripes, is wholly of a bright, rather yellowish, deep green, semi-transparent yet velvety, while the sides and belly are of a tender opaque whitish-green, the twin lines as before low on the sides but now white, the tubercular warts stand one before the other in pairs on the sub-dorsal stripes, of which they form a part, being also white; the segmental folds pale yellow. Soon after this period a dorsal stripe becomes visible, for the first time, and at its first appearance is very faint, and of an obscure whitish character, as though lying deep below the surface; varieties also now occur that have two transverse bars of white on the twelfth segment, and one on the thirteenth, extending over the back from one sub-dorsal line to the other.

At the end of May, or early in June, the larva attains its full-growth, which is about 1⅜ to 1½ inches in length, the body plump and cylindrical, rather thicker however in the middle than at each end; the head, the lobes of which are rounded and full, is a little less in width than the second segment; the segmental divisions are tolerably indented, and excepting on the thoracic segments there are no sub-dividing wrinkles on the back, though they are numerous and distinct on the sides, the back is therefore very smooth.

In colour, the head is a pale transparent yellowish-green: the dorsal stripe of opaque pale blue-green, or whitish blue-green, has, by degrees, become wonderfully developed, and is now so broad as to occupy nearly the whole area of the back, there being but a mere line of the previous transparent deep yellowish-green left next the sub-dorsal white stripes, which, on the twelfth segment, have a tendency upwards to a point, as though inclined to meet one another there, but return again to their former level, and nearly meet at the end of the anal flap; the sides are of a very pale and delicate opaque whitish blue-green, with two fine rather wavy looking white lines nearly parallel along the region of the spiracles; the ventral surface, legs, and pro-legs are of a glossy pale full green; the tubercular warts are now hardly to be observed on the level smoothness of the back; though the colouring is nearly all opaque and approaching more or less to whiteness, yet the surface of the skin is by no means rough, but has a certain faint polish, allied to smoothness, like that of a new white kid glove.

When about to pupate the larva loses all its beautiful opaque colouring, and then becomes of an uniform green, and semi-transparent, otherwise like the underside of a maple leaf in tint.

The pupa is enclosed in a thin brittle earthen cocoon, of a broad, oblong oval shape, and formed in an upright position, with little silk in its texture, though the interior is very smooth; the pupa itself is of a more slender form, with the abdomen somewhat more tapering than that of most *Notodontidæ*, though both extremities are rounded, the tail being furnished with a pair of very small, fine, curved spikes, with which it is attached to the summit of the cocoon, the pupa skin is delicately thin, polished, and of a purplish-brown colour, whilst containing the future moth.

It should be mentioned that the larvæ will feed on sycamore, as well as on maple, and also, that when young, and even half-grown, they seem to be social, as two are often found reposing on the under-part of a maple leaf, folded round side by side, like a schoolboy's pot-hooks.

The perfect insect appears in October and November.—WM. BUCKLER, Emsworth, *December* 13*th*, 1870.

Leucania vitellina at Torquay.—A specimen of this species, in good condition, has been sent to me from Torquay for identification, with the information that it was captured with another specimen, on November 5, 1870, at ivy flowers.

One was taken also on November 3rd, 1869, at Arbutus flowers, and another late in October, 1868, at ivy. These dates seem later than those previously recorded, but the moth sent to me has all its fringes perfect, as though it had not long been on the wing.—J. HELLINS, Exeter, 9*th January*, 1871.

Triphæna subsequa in Gloucestershire.—I find, amongst my captures at sugar last season, a very perfect specimen of the above insect. I record its capture for the following reason: I had never seen a specimen of this insect; but, wanting a single *Orbona*, to replace a damaged one in my cabinet, I took four amongst some twenty or so at sugar one evening, the brightest and perfect looking of the lot. It was set and put by in the store box. When I came at the end of the season to arrange my captures, the damaged *Orbona* was taken out and the new capture put in its place. Although I had never seen *subsequa*, I saw at once that the new moth was not *Orbona*. *Subsequa* then thought I, it must be, so it proved. Now—may it not be that after all *subsequa* is not so very rare, but is passed over as *Orbona?* Mr. Crump, of Winchcombe, also took one—badly rubbed—last season. If I live till next summer, I will take every yellow underwing I come across.—E. HALLETT TODD, Northleach, *January*, 1871.

Notes on the genus Eupithecia.—I was agreeably surprised, whilst searching the seeds of *Angelica sylvestris* in this neighbourhood last September for larvæ of *E. trisignata* and *albipunctata*, to find, feeding with them, several larvæ of *pimpinellata* in two varieties. I could not find their ordinary food, *Pimpinella saxifraga*, there at all: they fed up on the former unsavoury plant, and are now in pupa. I also found on the *Angelica* seeds, not uncommonly, larvæ of *centaureata*, and of that polyphagous creature, *castigata*. There also occurred, on the same seeds, several very beautiful larvæ, evidently of this genus, which I cannot make out; they may be only *centaureata*, but I hope for something better.

While writing on this interesting genus, I may say that Mr. Prest, of this city, and I, have taken the larvæ of twenty-two species, viz.:—*venosata*, *pulchellata*, *centaureata*, *subfulvata*, *lariciata*, *castigata*, *trisignata*, *virgaureata*, *albipunctata*, *valerianata*, *pimpinellata*, *fraxinata*, *indigata*, *nanata*, *subnotata*, *vulgata*, *absynthiata*, *minutata*, *assimilata*, *tenuiata*, *abbreviata*, *rectangulata*, and the allied *Collix sparsata*, of which I have reared a second brood.—T. J. CARRINGTON, 31, Holgate Road, York, *November*, 1870.

Captures of Lepidoptera near Lewes during 1870, *arranged chronologically.*—April 8th, *T. miniosa*, *S. satellitia*, *C. vaccinii*, on sallows; 14th, *T. populeti*, one, *T. munda*, one, *H. croceago*, several, *T. miniosa*, one, on sallows, *T. piniperda*, one, on a fir trunk—some of the *H. croceago* and *C. vaccinii in cop.*; 20th, *A. derivata*. May 24th, *C. temerata*, *L. viretata*, *E. omicronaria*, at dusk. June 2nd, *E. orbicularia*, at rest, *Eup. plumbeolata*; 4th, *A. betularia*, at rest; 6th, *Cr. chrysonuchellus*, common, *H. genistæ*, at sugar; 9th, *P. globulariæ*, only one, *Eup. venosata*, *M. anceps*; 10th, *A. promutata*, *A. megacephala*, *G. trilinea* var. *bilinea*; 11th, *M. Athalia*, *M. hastata*, *T. chærophyllata*, *M. fuciformis*, *L. testudo*, *N. plantaginis*; 14th, *P. vitalbata*, *P. tersata*, *C. porcellus*, *N. saponariæ*, *D. conspersa*, *D. carpophaga*, *P. chrysitis*, *M. anceps*, over flowers, at dusk; 15th, *C. silaceata*, *A. prunaria*, *E. porata*; 16th, *P. Geryon*, commonly; 20th, *A. rubidata*, *H. serena*; 23rd, *A. luteata*; 24th, *A. tincta*, *L. turca*, at sugar; 30th, *O. sambucata*, *R. sericealis*. July 1st, *A. aceris*, *G. papilionaria*, one; 3rd, *A. Galathea*, common; 7th, *Cr. falsellus*, over mossy thatch, *Eup. subnotata*; 8th, *X. sublustris*, *C. blanda*, on sugar; 14th, *I. vernaria*, *M. rubiginata*; 15th, *L. turca*, *A. ligustri*, *E. viminalis*, *H. derivalis*, rather commonly at dusk, and on sugar; 13th, *T. fimbria*; 18th, *P. syringaria*, *T. dumetana*; 19th, *L. chrysorrhœa*, *L. salicis*, on lamps; 25th, *P. stratiotalis*, on lamps; 27th, *Botys flavalis*, *C. angustalis*, one. August 3rd, *G. obscurata*, white variety; 4th, *C. diffinis*; 5th, *H. comma*; 8th, *A. puta*, *A. gemina*, *C. Cytherea*, *L. griseola*, *M. literosa*, on sugar; 10th, *C. graminis*, *L. testacea*, *S. Semele*, on sugar; 24th, very bad specimen of *D. galii* brought—it laid two eggs which shrivelled up. September 15th, *A. australis*, *L. cespitis*, one, on grass; 18th, larva of *D. galii* brought to a friend, also a worn *S. convolvuli*, the only one I have heard of in this locality this season; 19th, *H. protea*, *C. diluta*, *C. vetusta* (1), on sugar; 23rd to October 7th, *P. empyrea*, on sugar and ivy bloom; 23rd, *A. saucia*, on sugar; 30th, *A. rufina*. October 12th, *A. rhizolitha*, one, on sugar; 14th, *A. saucia*, on sugar; 28th, *S. satellitia*, *C. spadicea*, &c., abundant.—J. H. A. Jenner, Lewes, *December 3rd*, 1870.

Captures of Lepidoptera near Battle during 1870, *arranged chronologically.*—February 26th, *H. rostralis*, *G. libatrix*, hybernating; 28th, *G. rhamni*, *H. rupicapraria*. March 2nd, *V. Io* and *urticæ*; 22nd, *T. miniosa*, one bred from pupa dug. April 3rd, *T. gothica*, one, on sallow bloom, by day, *T. hyemana*; 8th, *T. munda*, on sallows; 9th, *T. miniosa*, one, on a hedge; 15th, *H. croceago*, one, on sallows; 16th and 18th, *B. notha*, three ♀ specimens flew up from damp ground; 16th, *X. petrificata*, one, flying; 14th, *T. leucographa*, one, on sallows. May 15th, *A. Baummanniana*, *V. polychloros*, several hybernated specimens flying over elms; 23rd, *T. Tages*, *Eup. coronata*. June 4th, *C. duplaris*, *H. thalassina*, on sugar, *P. falcula*, flying, *C. silaceata*, one, *A. leporina*, one, *B. consortaria*, one, at rest on fir trunks; 6th, *C. plantaginis*; 11th, *C. fluctuosa*, flying over birch bushes, *A. sylvata*, common, *T. Batis*, *T. extersaria*, *B. consortaria*, *B. lancealis*, *P. lacertula*, flying, *G. trilinea* var. *bilinea*, *A. tincta* and *E. lucipara* on sugar; 13th, *Z. trifolii*, common; 18th, *M. notata*, *E. heparata*, *P. falcula*, *H. prasinana*, *C. fluctuosa*, *C. duplaris* and *A. porphyrea*, flying; 19th, *B. consortaria*, one, *Eup. linariata*, one, on fir trunks; 25th, *Cr. pinetellus*, *M. notata*, *P. lacertula*, *C. fluctuosa*, *B. mesomella*, flying; 26th, pupæ and larvæ of *V. polychloros* on and near elms; 27th, *A. villica*, *A. prunaria*, *C. corylata*, *C. mesomella*, *N. dodonœa*, one, on palings. July 2nd, *M. miniata*, *B. repandata* var. *conversaria*, two specimens, *C. picata*, *M. albicillata*, flying, *A. tincta*, at sugar; 9th, *L. testudo*, one, flying at dusk, *H. derivalis*, two, *G. papilionaria*, one, *C. miniata*, *L. complana*, *C. obliquaria*, one, *P. syringaria*, *A. emarginata*, at dusk, one of the *C. miniata* a very fine yellow variety; 7th, *C. mesomella*, *T. derasa*, *P. bajularia*, *C. ligniperda*, *X. polyodon*, one black variety; 16th, *Nola strigula*, two, on sugar, *H. derivalis*, on sugar, *P. stramentalis*, one, *L. complana*; 17th, *A. Iris*, damaged specimen brought me. August 6th, *C. nupta*, at sugar, *N. baja*, *N. Dahlii*, on heath and other bloom; 13th, *T. retusa*, one, flying, *E. pendularia*, one, *P. interrogationis*, flying, surely a very southern locality? 24th, *C. diluta*. October 8th, *A. macilenta*, *S. satellitia*, &c., on ivy bloom.—Id.

Review.

The Proceedings of the "Perthshire Society of Natural Science" for Session 1869–70.

The example shewn by this Northern Society is worthy of emulation by other and longer instituted local associations. Although only three years old, it contrives to issue a creditable little volume of "Proceedings," embodying much local information and some that will interest Naturalists as a body. Under the auspices of its President, our well-known contributor, Dr. Buchanan White, entomology takes a very prominent position, which it should do, considering that the far-famed Rannoch district comes within its area. A paper by Dr. White on the Butterflies of Perthshire is of great interest: from it we learn that 29 out of the 35 Scotch species are found in the county; but what a contrast to the 77 Scandinavian forms! Another paper on the minute division of the district is a good lesson on the method in which a limited area should be thoroughly worked, and should put to shame those of our Metropolitan collectors who hold that discoveries made by them should be confided only to their immediate circle, and that those who have not the privilege of their confidence should only reap such benefit (?) from them as the possessors of the "secret" choose to divulge. We would, however, caution our provincial friends against the chance of their ideas becoming too narrow: extreme localisation for a long time caused British entomologists to remain a laughing-stock with their Continental brethren.

THE SCOTTISH NATURALIST, and Journal of the Perthshire Society of Natural History; edited by Dr. BUCHANAN WHITE. Perth, The Society; Edinburgh, Maclachlan and Stewart.

We have before us the first quarterly part of this new periodical, which is intended to supersede the "Proceedings" noticed above. It extends to 32 pages, is well printed and edited, and should take a prominent position in Natural History serial literature. We give it a cordial welcome and our best wishes. The opening paper is one by Dr. Lauder Lindsay on "Natural Science Chairs in our Universities," ably written, but scarcely, we think, in good taste. There are many notices on Zoology (especially Entomology) and Botany, and copious reports of the Meetings of various Scottish Natural History Societies; concluding with the first part of an exhaustive paper by the Editor on "Sugaring." We were scarcely prepared, even in a Scottish journal, to find *whisky* mentioned as a probable substitute for *rum,* in concocting the bait. But, possibly, Scottish *Noctuæ* have Scottish peculiarities. We are careful not to say that the "Dew off Ben Nevis" is useless, because, when we recently mildly suggested to a German friend that "beet-sugar" was of little avail, we were met by the sarcastic remark (Stett. Ent. Zeit., 1871, p. 95) that "Die englischen Noctuen bewiesen aber darin sehr feine Nasen, dass sie zwischen Runkelrüben und Rohr-Zucker sehr genau unterschieden."

Obituary.

The Rev. Edward Horton.—On the cover of our December number we briefly announced the death of this gentleman, which took place at Exeter on the 9th November, at the age of 55, after some considerable period of very bad health. For some years he was engaged in tuition as a private schoolmaster at Worcester, and afterwards became the chaplain of the County Lunatic Asylum at Powick near that town, a position he retained up to his forced resignation through failing health. As a Lepidopterist he was widely known and universally respected, and the extreme liberality with which he supplied all the principal collections with *Toxocampa craccæ,* discovered in Britain by him, is an example which might be followed to their advantage by some of our collectors. He was a Member of the Worcestershire Natural History Society, and took an active part in the formation of the Society's Museum, illustrating the Natural History of the county. He was also engaged on a list of the Worcestershire *Lepidoptera,* but we are uncertain if it were ever published. The earlier volumes of this Magazine, and the previously existing entomological periodicals, testify both to his activity and keenness of observation;

and those entomologists who had the pleasure of his personal acquaintance have reason to deplore the loss, in him, of an amiable friend. Mr. Horton leaves a widow, two sons, and three daughters. To his fellow-townsman, Mr. Fletcher, we are indebted for several particulars in the foregoing short notice.

The Rev. J. F. Dawson.—Of this "Geodephagist," whose somewhat premature decease, on the 16th October last, was briefly recorded on the cover of our November issue, little can be said that is likely to be unknown to any British Entomologists, as his insect love and labours were (with the exception of an attachment to the *Curculionidæ*) entirely devoted to the beetles described in his well-known "Geodephaga Britannica," the publication of which was the first step towards freeing us from isolation, and which, considering the state of Entomological science here at that time, is certainly deserving of the highest encomium;—all that can be said against it being that the author's views were, perhaps, in some cases, a little too synthetical; and that there was scarcely sufficient *comparative* descriptive matter in it. Although anticipated in two of his species of *Dyschirius* (a difficult genus,—and at that time still more so,—for which he had an especial liking), his *D. impunctipennis*, *Trechus lapidosus* and *Bembidium Clarkii* will survive to keep him in memory,—if his *Stenolophus derelictus* should fail to be established. Mr. Dawson retained to the last his love for the *Geodephaga;* but, his eye-sight having for some time been failing, he was compelled to abandon even the pretence of working; and, not being able to keep in the foremost ranks through this infirmity, he withdrew from all communication with his fellows. Beneath his personal eccentricity, he had very many estimable characters; and it may also be noted that his proficiency as a Hebrew scholar was very considerable, taking into account the small favour in which that study was held by the community until very recently. His book entitled "Old Testament Events," contains much that is able and ingenious, though some of the conclusions therein deduced might not find general acceptance.

ENTOMOLOGICAL SOCIETY OF LONDON, 2nd January, 1871.—A. R. WALLACE, Esq., F.Z.S., President, in the Chair.

A. M. Ross, Esq., M.D., of Toronto, was elected a Member.

Mr. Butler exhibited species of *Lepidoptera* forming part of a collection sent to Mr. Swanzy by Mr. Ussher, from Fantee, West Coast of Africa. Amongst them was a large species of *Brahmæa* allied to *B. Lucina*, which Mr. Butler proposed to call *B. Swanzyii*, also two instances of mimicry amongst butterflies, viz., *Godartia Eurynome* and *Danais Leonora*, and *Mylothois Agathina* and *Belenois Sylvia*. The latter case being one of resemblance between two species of the same family, Mr. Bates suggested it was a case of affinity rather than positive mimicry.

Mr. W. C. Boyd exhibited varities of several familiar species of British *Lepidoptera;* one of the most remarkable being a strange dwarf form of *Porthesia auriflua*.

Mr. Verrall exhibited a specimen of *Plusia interrogationis* captured at Battle, Sussex, by Mr. Jenner (see p. 214), the species being almost exclusively northern in its habits in this country.

Mr. Hewitson communicated "New Species of South American Diurnal *Lepidoptera*."

DESCRIPTION OF A NEW GENUS AND SPECIES OF *STAPHYLINIDÆ* (FROM SOUTH AUSTRALIA).

BY D. SHARP, M.B.

SARTALLUS: *Gen. nov. Staphylinidarum (Oxytelini).*

Corpus latum, robustum, haud depressum, alatum. Caput thorace minus et angustius, porrectum, basi vix constrictum, oculis semi-globosis, modice prominulis. Labrum transversum, medio emarginatum, margine antico dense setigero. Mandibulæ prominentes, acuminatæ, irregulariter dentatæ. Maxillæ malâ interiore margine exteriore coriaceo, interiore membranaceo, apicem versus spinulis octo, et pubescentiâ nonnullâ instructâ; malâ exteriore longiore, coriaceâ, apice longe et dense pubescente. Palpi maxillares malâ exteriore parum longiores, articulo primo minuto, secundo elongato-obconico, tertio hoc vix longiore, quarto minuto, subulato. Labium ligulâ late emarginatâ, sub-bilobatâ, paraglossis occultis. Palpi labiales articulis duobus primis sub-æqualibus, tertio minuto. Antennæ fractæ, breviusculæ, articulo primo elongato, ultimis tribus præcedentibus distincte majoribus. Elytra truncata, apice ciliata. Abdomen latum, haud cylindricum, marginatum. Pedes tibiis anticis evidenter incrassatis, geniculis constrictis, externe fortius breviter spinulosis, intermediis et posticis spinulis longioribus, inter spinulas setulosis. Tarsis omnibus quinque articulatis; articulo primo obsoleto, a tibiâ obtecto, tribus sequentibus brevibus, ultimo elongato, præcedentibus conjunctis longiore.

This remarkable insect, though much allied to *Bledius*, has an entirely different and very peculiar appearance; its broad, robust, and quite uncylindric, but somewhat convex form giving it a facies peculiar to itself. Its tarsi might well be supposed 4-jointed; but, when mounted in balsam, and examined with a good microscope, a fifth small basal joint, concealed by the tibia, is distinctly revealed. A specimen sent by me to M. Fauvel was returned by him as probably belonging to the *Nitidulidæ*; an opinion which he must have formed, however, on a very slight examination.

S. SIGNATUS. *Testaceus, oculis nigris, elytris medio plus minusve distincte piceo-signatis; capite prothoraceque nitidis, fortiter haud crebre punctatis, elytris sub-opacis, apice ciliatis, vage punctatis.*

Mas; abdominis segmenti septimi ventralis lateribus utrinque hamato-productis, acuminatis.

Long. $2\frac{1}{2}$ *lin.; lat.* 1 *lin.*

Testaceous, with the elytra paler. Antennæ with the basal joint elongate, about as long as the four or five following together, second and third joints cylindric, the second longer than the third, this longer than broad, 4—8 differing little from one another, each about as long as broad, the last of them a little stouter than the others, 8—11 considerably broader and longer than the preceding joints. Head with a projection on each side over the insertion of the antennæ, coarsely and irregularly punctured. Thorax shining, sub-cordate, not quite so long as broad, the sides rounded in front, the posterior angles rather obtuse, coarsely and irregularly punctured. Elytra longer than the thorax, not shining, with a common broad, pitchy, angulated mark, sometimes entirely wanting; coarsely but irregularly, and towards the apex obsoletely, punctured; the apex furnished with long, closely set ciliæ. The hind body sparingly punctured.

I have received this insect from Mr. Edwards: it inhabits South Australia; and from its appearance I suppose it lives in sandy places on the coast.

Thornhill, Dumfries,
February, 1871.

NOTES ON *CARABIDÆ*, AND DESCRIPTIONS OF NEW SPECIES (No. 1).

BY H. W. BATES, F.Z.S.

Genus Abaris, *Dejean*.

This genus, compared, as regards *facies*, with *Pogonus* by Dejean, is placed in Gemminger and v. Harold's Catalogue near *Platynus*. I think its true place is near *Drimostoma* and *Abacetus*, among the restricted *Feroniinæ*. The tooth of the mentum, described by Dejean as "simple et presque obtuse," approaches in reality the bifid form assumed in *Feronia*, its surface at the tip being indented, and the broad tip, in consequence of this indentation, being sub-emarginated. The species composing the genus are of small size, not unlike *Bradytus* in shape, but with more slender legs and with prominent eyes. The surface of their body is polished and glabrous, free from punctuation, and of coppery or brassy colour. The antennæ vary in length and robustness, but their fine pubescence begins only with the tip of the 4th joint, and the apex of the basal joint bears a large setigerous puncture. The mandibles are prolonged, acute, and curved at the point, without teeth. The head has two setigerous punctures on the inner margin of the eye, but the hind one is sometimes wanting, and there is always a similar puncture on each side of the epistoma. The elytral striæ are all sharply marked, the lateral ones sometimes deeper and converging before the tip, giving the insects a close resemblance to the genus *Notiobia* of the *Anisodactylinæ* group, with which they also agree in the prominent eyes, in form, and in colours. The short scutellar stria is very variable; but all the species have a single large puncture on the disc a little behind the middle. The prosternum has a slight raised rim at the apex, and is destitute of hairs. The middle ventral segments have, very generally, a transverse groove, visible chiefly at the sides. The three basal joints of the anterior tarsi of the ♂ are moderately dilated, triangular, with the angles rounded, and furnished beneath with two divergent rows of pectinated *squamæ*, in some cases much elongated.

Two species of the genus only have been hitherto described, differing from any of the following. All are found in Tropical America, under rotten, dead leaves, in dry situations in the forest, and run with great swiftness.

ABARIS ROBUSTA, n. sp.—*Oblongo-ovata, latiuscula, læte æneo-cuprea, nitida, partibus oris, antennis, pedibus et ventro piceis; capite thorace dimidio angustiori; thorace transverse quadrato, lateribus præsertim prope angulos anticos rotundatis, basi utrinque bifoveolato et prope angulum punctato; elytris fortiter striatis, striis exterioribus paulo profundioribus, interstitiis subæqualibus, stria abbreviata basali curta inter strias* 1^{mam} *et* 2^{dam}; *pectore nigro, interdum corpore infra toto rufo-piceo; ventro transversim sulcato.*

Long. 4 lin. Lat. elytr. 1⅝ lin. ♂ ♀. 10 exempl.

A large, robust species, found generally throughout the Amazons, but not common. The general colour above is a glossy, æneous-coppery, the head and thorax and sides of elytra being often somewhat greener. The short basal stria does not approach either the 1st or 2nd stria. All the striæ are sharply marked, in some places almost sulcate, and the lateral insterstices are not much narrower than the inner ones. The antennæ are short, much thickened, and sub-moniliform towards the tips, the third joint not much longer than the 4th. The 4th—6th ventral segments have a sharp transverse groove near their anterior border, and not reaching the lateral margin.

ABARIS PICIPES, n. sp.—*Gracilior, oblonga, nigro-ænea, splendida, elytris cupreis, antennis pedibusque piceo-rufis, oris partibus rufis, abdomine apice rufescenti; capite thorace paulo angustiori; thorace transverse quadrato, lateribus antice rotundatis, basi utrinque bifoveolato et sparsissime grosse punctato; elytris fortiter striatis, interstitiis dorsalibus paulo latioribus et planioribus; ventro haud sulcato.*

Long. 3 lin. Lat. elytr. 1⅛ lin. ♀. 1 exempl.

Very similar in sculpture to *A. robusta*, but smaller, narrower, and more parallel, the head especially proportionally much larger, being only a little narrower than the anterior part of the thorax: the abdomen is reddish only at the extreme apex, and there is no appearance of a transverse groove on the ventral segments. The thorax is rounded and narrowed anteriorly, but the sides from the middle to the base are straight.

I have retained for my own collection only one example of this species, which is peculiar to the banks of the Tapajos, Amazons.

ABARIS NOTIOPHILOIDES, n. sp.—*Oblongo-ovata, cupreo-œnea, nitida, partibus oris, antennis et pedibus flavo-testaceis, ventro rufo-piceo; capite thorace paulo angustiori; thorace transverse quadrato, basi utrinque grosse denseque punctato et bifoveolato; elytris profunde striatis, interstitio* 3^{tio} *cæteris duplo latiori, stria abbreviata nulla; ventro haud transversim sulcato.*

Long. $2\frac{1}{3}$—$2\frac{1}{2}$ lin. Lat. 1 lin. ♂ ♀. 5 exempl.

The wide and glossy 3rd insterstice of the elytra, and the prominent eyes, remind one of the species of *Notiophilus*. There is, however, no other resemblance between the insects.

Found at Ega, Amazons, in company with *A. robusta*.

ABARIS STRIOLATA, n. sp.—*Oblongo-ovata, cupreo-œnea, nitida; partibus oris, antennis, ventris apice et pedibus flavo-testaceis; capite thorace paulo angustiori; thorace transverse quadrato, basi utrinque impunctato, distincte bifoveolato; elytris fortiter striatis, interstitiis subæqualibus, stria abbreviata basali valde notata et elongata; ventris segmentis* 4—5 *transversim sulcatis.*

Long. $2\frac{1}{2}$ lin. Lat. elytr. $1\frac{1}{6}$ lin. ♂ ♀. 3 exempl.

Closely resembling the preceding in general form and colour, but differing in many essential points, especially the absence of punctuation from the hind angles of the thorax, and the equal width of the elytral interstices, &c.

Found in company with it at Ega, Amazons.

ABARIS TACHYPOIDES, n. sp.—*Facies Tachypi Bembidiidarum, elongata, capite thoracis latitudine, oculis valde prominentibus; œnea, nitida, partibus oris, antennis et pedibus flavo-testaceis; thorace angustiori, quadrato, lateribus præcipue antice valde rotundatis, basi toto sparsim punctato, utrinque bifoveolato; elytris sulcato-striatis, interstitiis subæqualibus: ventris segmentis intermediis transverse sulcatis.*

Long. $2\frac{3}{4}$ lin. Lat. elytr. 1 lin. ♂. 2 exempl.

A slender species, with large head, prominent eyes, and thorax not wider than the head, and much rounded on the sides, especially anteriorly. The facies is that of the species of *Tachypus*.

Rare, at Ega, Amazons.

Calophæna viridipennis, n. sp.—*Elongata, testaceo-rufa, elytris læte viridi-cyaneis subsericeis, geniculis, tibiis et tarsis nigro-piceis; capite ut in C. acuminata rhomboideo, post oculos modice elongato et recte angustato; thorace quam in C. acuminatâ paulo latiori, elongato, nitido, angulis posticis valde productis sed haud acuminatis; elytris fortiter striatis, interstitiis impunctatis, apice oblique truncatis, angulo exteriori breviter dentato, suturali longe aculeato; antennis fuscis, basi testaceo-rufis.*

Long. 5 lin.

A most beautiful species of this curious genus, distinguished from all others by the metallic uniform colour of the elytra.

One example, from Pebas, Upper Amazons.

Ctenodactyla foveata, n. sp.—*C. Chevrolatii affinis, major, tota fusco-ænea, nitida, capite post oculos longiori; thorace angusto, antice angustato, medio paulo rotundato-dilatato, supra grosse punctato; elytris viridi-fusco-æneis, fortiter crenato-striatis, interstitio* 3*^{to}*

Long. 5½ lin. 1 exempl.

In the form of the head, gradually and rectilinearly narrowed behind the eyes, this species resembles *C. Batesii*, Chaud., but the thorax is much narrower, and is distinguished by being broadest about the middle, and gradually narrowing both before and behind. The interstices of the elytra are rather convex, and the large setigerous punctures unusually well marked. It is, apparently, most closely allied to *C. Drapiezii* of Gory, in which, however, the head and thorax are of a reddish colour.

Taken at Ega.

Ctenodactyla glabrata, n. sp.—*C. Chevrolatii similis, capite post oculos thoraceque longioribus, prosterni episternis impunctatis; nigerrima, nitida, thorace rufo impunctato, antennis (basi obscuris) femoribus basi, trochanteribus, metasterni medio tarsisque rufescentibus; elytris fortiter punctato striatis, interstitiis subplanis.*

Long. 5 lin. 2 exempl.

Distinguished from *C. Chevrolatii* by the more intense black colour of the head and elytra, besides its black legs and impunctate polished thorax and prothoracic episterna.

Apparently not uncommon on the banks of the Ucayali, whence Mr. Edw. Bartlett brought a considerable number. *C. brasiliensis*, Lucas, from the same locality, differs by its red legs and black knees.

Ctenodactyla depressa, n. sp.—*Species egregia, valde depressa, antennarum articulo basali valde elongato. Depressa, nigra, nitida, capite thorace et dimidio basali antennarum testaceo-rufis; capite ut in C. Chevrolatii post oculos rotundato-angustato; thorace elongato, postice vix angustato, antice paulo rotundato, supra impunctato; elytris punctato-striatis, interstitiis paulo convexis, 3to quadri- 5to bi-foveolato; prothorace subtus impunctato; tarsorum articulis 4—5 rufo-testaceis.*

Long. 5¼ lin. 1 exempl.

Beyond the singular elongation of the basal joint of the antennæ this curious species offers no character to warrant its separation from *Ctenodactyla.* It inhabits the close fitting folds of large aquatic grasses in which species of *Cephaloleia*, and other flattened forms of *Hispidæ*, lie concealed in great numbers. *C. Chevrolatii* and *puncticollis* I always found within the sheathing bases of leaves of Indian corn in plantations.

Ega.

Leptotrachelus cruciatus, n. sp.—*Ab omnibus speciebus adhuc descriptis differt corpore haud lineari, elytris oblongo-ovatis. Testaceo-rufus, elytris fascia basali alteraque ultra medium (ad suturam postice dilatata) per lineam suturalem conjunctis fuscis; capite postice recte angustato, thorace breviter oblongo, lateribus antice paululum rotundatis, angulis posticis acutis, prope angulos punctato; elytris basi latis, rectis, pone medium rotundato-dilatatis, supra fortiter punctato-striatis, interstitiis convexis, 3to quadri -5to uni-foveolato; tarsis latioribus, robustioribus, articulo 4to lobis elongato-ovatis.* Long. 4¾ lin. 1 exempl.

Differs from all previously described species in its ovate form, especially of the elytra, and in the shorter and broader tarsi. The claws, mentum, and other parts are, however, formed precisely as in *Leptotrachelus;* and it possesses also a characteristic feature, hitherto omitted in descriptions of this genus, namely, an acute wedge-shaped projection of the prosternal process, on a lower plane than the usual apex of that organ.

On trees; Ega.

Leptotrachelus bifasciatus, n. sp.—*Præcedenti valde affinis, differt elytris fasciis duabus nigris per suturam haud conjunctis. Elongato-ovatus, testaceo-rufus, nitidus; thorace oblongo, lateribus antice leviter rotundatis, postice utrinque punctato, disco glaberrimo, angulis posticis rectis; elytris oblongo-ovatis, punctato-striatis, fascia basali, alteraque ultra medium ad suturam paulo dilatata, nigris.* Long. 5 lin. 1 exempl.

Peru; obtained from the collection of the late Rev. Hamlet Clark.

Helluomorpha glabrata, n. sp.—*Magna, nigerrima, vix punctata vel setosa; capite lævi, linea curvata punctorum prope oculum; labro medio sinuato angulis valde rotundatis; palpis art. ult. magnis truncato-ovatis; thorace lateribus antice valde rotundato-dilatatis, postice valde sinuato-angustatis, angulis posticis productis, acutis, longe ante marginem posticum sitis, marginibus omnibus grosse punctatis, disco impunctato glaberrimo; elytris thorace multo latioribus, oblongo-elongatis, profunde striatis, striis vix perspicue sparsim subtiliter punctulatis, interstitiis politis, impunctatis, punctis magnis hic illic prope strias sparsis exceptis, margine laterali seriebus duabus punctorum et punctulato: corpore subtus nitido, passim sparse punctato.*

Long. 12 lin. Lat. elytr. 4 lin.

A fine large species distinguished from *H. heros* and *bellicosa* by the nearly impunctate and glabrous surface.

One example; Pebas, Upper Amazons.

Helluomorpha Janus, n. sp.—*H. sparsæ (Brullé) affinis, differt corpore supra nigro, infra cum margine inferiori elytrorum, partibus oris antennis et pedibus ferrugineo-piceis; corpore toto pubescenti; capite prope oculos grosse confuse punctato, labro antice medio obtuse producto, angulis lateralibus distinctis; thorace cordato, lateribus antice valde rotundato-dilatatis, postice valde vix sinuatim angustatis, angulis posticis haud productis, supra grosse sed haud dense punctato; elytris fortiter striatis, interstitiis convexis, singulis uniseriatim juxta strias punctatis, duobus marginalibus confuse punctatis; corpore subtus punctato.*

Long. 6½ lin. Lat. elytr. 2¼ lin. 1 exempl.

Ega.

Helluomorpha oculea, n. sp.—*Nigra, passim dense pubescens; capite parvo, oculis maxime exsertis, orbitu postico angustissimo, collo angusto, supra sparsim lateribus densius punctato, labro medio paululum obtuse producto, cum palpis nigro-piceis; antennis piceis; thorace antice valde rotundato angulis anticis nullis, postice modice sinuatim angustato, angulis posticis obtusis, supra toto (præsertim lateribus) punctato; elytris fortiter striatis, interstitiis convexis, singulis biseriatim punctatis; corpore subtus punctato.*

Long. 6½ lin. Lat. elytr. 2⅓ lin. 1 exempl.

Ega, Amazons. Found concealed in a folded leaf of a tree in company with an *Agra*. I several times met with *Helluomorphæ* in such situations, and believe them to be nocturnal insects.

Helluomorpha subrostrata, n. sp.—*Elongata, nigra, breviter pubescens; capite nitido, fronte utrinque fovea magna grosse punctata, labro triangulari, medio valde producto et apice paulo deflexo; palpis maxill. art. ult. valde dilatato; thorace longiori, antice rotundato-dilatato, postice gradatim vix sinuatim angustato, pone angulos posticos acutos oblique truncato, supra grosse, dorso lineatim punctato; elytris thorace paulo latioribus, late striatis, interstitiis convexis, singulis fortiter biseriatim punctatis.*

♂? *angustior, sublinearis.* Long. 5½ lin. Lat. elytr. 1¾ lin.
♀? *latior, oblonga, modice elongata.* Long. 6½ lin. Lat. elytr. 2¼ lin.

The beaked elongation of the labrum differs from the distinct central tooth which distinguishes the allied genus *Pleuracanthus*. The elytral striæ are broader than in the allied species, so that the two series of punctures on the sides of interstices might equally well be described as belonging to the striæ.

Ega.

Helluomorpha linearis, n. sp.—*Elongata, parallelogrammica, nigra, breviter pubescens; capite supra grossissime parce punctato, foveis frontalibus lævibus, collo crasso, labro triangulari medio valde producto et apice paulo deflexo acuto; thorace capite paulo latiori, lateribus antice modice rotundato-dilatato, angulis posticis rectis, supra grossissime æqualiter punctato; elytris thorace haud latioribus, elongatis, linearibus, fortiter striatis, interstitiis singulis biseriatim punctatis.*

Long. 5 lin. Lat. elytr. 1½ lin. 1 exempl.

Ega.

Pleuracanthus ebeninus, n. sp.—*Pl. brevicolli* (*Dej.*) *valde affinis, differt statura multo majori angulisque posticis thoracis productis apice spinosis; oblongus, convexiusculus, aterrimus, nitidus, sparse pubescens; capite thorace paulo angustiori, vertice utrinque plagiatim grosse punctata, fronte foveis duabus grosse punctatis; labro transverso medio dente robusta; thorace brevi, valde transverso, lateribus postice sinuatim angustatis, angulis posticis productis, apice breviter spinosis, supra grosse punctato, disco utrinque convexo, lævi; elytris oblongis convexis, late striatis, striis biseriatim punctatis, interstitiis* 3*tio* 5*to et* 7*mo punctis nonnullis majoribus,* 8*vo multipunctato.*

Long. 9 lin. Lat. elytr. 3 lin.

Ega; one example.

Kentish Town: *February*, 1871.

NOTES ON SOME CORSICAN INSECTS.

BY REV. T. A. MARSHALL, M.A., F.L.S.

Having made two tours, each of about six weeks' duration, in the island of Corsica, and collected all orders of insects, I think a few indications of what is to be found there may interest some entomologists. The island has been seldom examined by English naturalists, but ransacked by French coleopterists and lepidopterists, and by a few more miscellaneous observers. M. Revelière has resided for some years in the island, and is well acquainted with its botanical and coleopterous productions; and last summer I met at Bastelica Messieurs E. Koziorowicz (ingénieur des ponts et chaussées) of Ajaccio, and E. Simon of Paris, the former bottling *Coleoptera*, and the latter *Arachnida*. The older researches of Rambur, Géné, Meyer-Dür, and others, are more or less known to readers of different journals.*

Corsica and its sister island Sardinia form the botanical centre of the Mediterranean district, characterized by the predominance of *Caryophyllaceæ* and *Labiata*, and whose limits extend from Portugal and the Canaries on the West, to the Caucasus and Lebanon on the East, and on the north and south from the foot of the Alps and Balkan to the borders of the Sahara. The *Articulata* of the same region correspond to its Flora; and in Corsica (of which alone I can speak) are to be found united many of the forms belonging to widely distant lands. Corsica consists of a mass of mountains, culminating in Monte d'Oro and Monte Rotondo, at a height of about 2,764 métres—watered by various small torrents, and descending to the east in a sandy and malarious plain, interspersed with lagoons, and swarming with *Orthoptera*. The lower mountains are clothed with a uniform "bush" of aromatic shrubs, giving place at a greater height to magnificent forests of chestnut, cork-oak, and pine; the sun-burnt plains exhibit the usual semi-tropical vegetation of the shores of the Mediterranean, and the mouths of the rivers are tangled with the rankest growth of which plants are capable. From June to August, which was the limit of my rambles, the vicinity of the rivers affords the best ground for the entomologist—and his head quarters should be at Ajaccio. He will resort daily to the Campoloro, a most fertile marsh at the mouth of the Gravone, about three miles off, and replete with every convenience of shade, water, and varied vegetation—not without a slight suspicion of malaria. I shall mention some of the most noticeable insects which occurred to me, beginning with the *Coleoptera*.

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* See also Dieck's "Ein Entomologischer Ausflug in die Berge Süd-Corsica's;" Berl. Ent. Zeit., 1870, p. 397 *et seq.*

Cicindela connata, Heer. *C. nigrita*, Dej. (black variety of *campestris ?*), forests, Bastelica. *C. littoralis*, F., swarming on sandy sea shores near the lagoon of Biguglia, Bastia. *C. litterata*, Sulz.—ibid.

Carabus morbillosus, F., mountains. *C. Genei*, Dej. *Calosoma sycophanta*, L., common, *C. sericea*, F., *Brachinus sclopeta*, F., *Aristus clypeatus*, Rossi, *Scarites arenarius*, Bon., *S. lævigatus*, F., *Epomis circumscriptus*, Duf., Ajaccio. *Chlænius velutinus*, Dufts. *Licinus agricola*, Ol. *Acinopus tenebrioides*, Dufts, Cap Corse. *Harpalus incisus*, Dej. *Pterostichus Ziegleri*, Dahlb., *P.* (*Percus*) *loricatus*, Dej., *corsicus*, Dej., and *Ramburi*, Lep., St. Florent, under stones. *Pristonychus angustatus*, Dej. *Calathus circumseptus*, Germ., in colonies, Ajaccio. *Pogonus pallidipennis*, Dej. *Bembidium 4-pustulatum*, Dej.

Cyclonotum orbiculare, F.

Silpha granulata, Ol., in dead horses, Ajaccio. *Platysoma oblonga*, F. *Hister inæqualis*, F., *H. major*, L. *Paromalus parallelipipedus*, Hbst. *Saprinus chalcites*, Ill. *Plegoderus saucius*, Er. *Rhizophagus ferrugineus*, Pk. *Dermestes vulpinus*, F. *Tiresias serra*, F.

Lucanus barbarossa, F., chestnut forests, Bastelica.

Ateuchus sacer, L., *A. semipunctatus*, and *laticollis*, Fab. *Sisyphus Schæfferi*, L. *Gymnopleurus Sturmii*, McL., *in stercore humano*, innumerable. *Onitis hungaricus*, Hbst. *Onthophagus taurus*, L. *Oniticellus flavipes* and *pallipes*, F. *Geotrypes hypocrita*, Ill.; *G. geminatus*, Géné, the common mountain species; *G. lævigatus*, F. *Rhizotrogus vicinus*, Muls. *Anoxia australis*, Sch. *Pachypus cornutus*, Ol., ♂ ♀ (♀ apterous), Bastelica. *Anomala Junii*, Dufts., on sandy shores, Bay of Ajaccio (peculiar to Corsica ?). *Oryctes gryphus*, Ill., lower mountains; its parasite is the large *Scolia flavifrons*, Fab *Oxythyrea stictica*, L. *Cetonia hirtella*, L., *C. sardoa*, Géné (two only), *C. morio*, F., common, *C. affinis*, Andersch., *C. floricola*, Hbst., *C. aurata*, L. (black, blue, and coppery varieties occur). *Trichius zonatus*, Germ., *T. fasciatus*, L.

Chalcophora Mariana, L., setting on pine logs, Forest of Vizzavona. *Capnodis tenebricosa*, F. *Dicerca ænea*, L. *Ancylochira flavomaculata*, F., and *A. rustica* and *octoguttata*, L., pine forests, Bastelica. *Anth*(*r*)*axia inculta*, Ger., and *A. nitida*, Rossi; several other species occur. *Ptosima novemmaculata*, L. *Acmæodera tæniata*, F. *Sphenoptera gemellata*, Man. *Chrysobothris affinis*, F. *Coræbus rubi*, L. *Trachys pygmæus*, F. *Adelocera carbonaria*, Schr., hatched in England from pupæ dug out of rotten pines, Forest of Vizzavona. *Elater crocatus*, Lap., under bark of pines. *Cardiophorus ulcerosus*, Gené. *Agriotes corsicus*, Cand.

Dictyoptera sanguinea, F., in flowers, foot of Monte d'Oro, and under rotten chips in forests, like *Eros Aurora*, F., in Scotland.

Lampyris sp.? near *mauritanica*, L.; ♂ abundant at Bastelica, flying into open windows at night; ♀ pale yellow. *Luciola italica*, L. *Telephorus corsicus*, Reiche.

Trichodes alvearius, F., and *T. apiarius*, L. *Sinoxylon sexdentatum*, Ol. *Apate capucina*, L.

Microdera pygmæa, Géné. *Tentyria angusticollis*, Sol., on sandy desert shores, Bay of Ajaccio. *Stenosis* (?) *angustata*, Hbst., under stones on the cliffs, Bonifacio: covered when alive with a blue bloom, easily rubbed off. *Acis punctata*, Thunb. *Blaps gigas*, L. (I saw one dead: the species was common at Blidah, Algeria). *B. gibbus*, Cast. *Asida corsica*, Lap. (under stones, summit of Monte Renoso), and *A. carinata*, Sol. *Pachyscelis quadricollis*, Lap. *Pimelia sardoa*, Sol., everywhere, in profusion. *Crypticus gibbulus*, Quesn., under stones, Bonifacio. *Pandarus tristis*, Lap., under stones, Bastia. *Pedinus meridianus*, Muls., frequent in sandy places. *Hopatrum corsicum*, Dej., and *rusticum*, Brullé. *Trachyscelis aphodioides*, Latr. *Phaleria cadaverina*, F., in dead horses, Bay of Ajaccio. *Platydema europæa*, Lap., rare. *Pentaphyllus melanophthalmus*, Muls. *Uloma culinaris*, L. *U. Perroudi*, Muls., under pine bark, Forest of Vizzavona. *Hypophlœus ferrugineus*, Creutz. *Iphthimus italicus*, Truq. *Menephilus curvipes*, L., in pine forests, under bark. *Helops cæruleus*, L., and *H. superbus*, Muls., pine forests: taken by M. Revelière. *Nephodes villiger*, Rol. *Omophlus curvipes*, Muls. *Dircæa Revelierii*, Muls., rare. *Lagria hirta*, L., abundant in the mountains. *Notoxus monoceros*, L., Campoloro, crawling in sand. *Mordella bipunctata*, Germ., and several other spp. *Myodites subdipterus*, F., taken flying, twice: an extraordinary insect, resembling a fly of the genus *Beris*, magnified. *Meloë brevicollis*, Panz. *Mylabris*, a few species. *Zonitis præusta*, Fab., and one of a smaller species, apparently distinct. *Sparedrus testaceus*, Anders., common. *Nacerdes melanura*, L., *N. sardea*, Schmidt. *Œdemera marginata*, F., *lurida*, Gyll., and *flavipes*, F.

Phytonomus philanthus, Ol., *P. tigrinus*, Dej. *Coniatus tamarisci*, F., abundant on every tamarisk. *Cleonus alternans*, Ol., *C. nanus*, Sch., *C. ocularis*, F. *Larinus cynaræ*, F., on thistles, Ajaccio; *L. scolymi*, Ol. *Lixus turbatus*, Sch. *Hylobius fatuus*, Rossi, pine forests. *Apion tubiferum*, Sch., *A. longirostre*, Ol., and other spp. *Attelabus atricornis*, Muls. *Sibynes attalicus*, Sch. *Nanophyes tamarisci*, Sch., Propriano, Golfe di Valinco. *Sphenophorus mutilatus*, Laich., Campoloro. *Sitophilus granarius*, L., in bags of oats. *Dryophthorus lymexylon*, F. *Bruchus imbricornis*, Panz., and other spp.

Phytœcia marginella, F. *Leptura hastata*, F., *L. testacea*, L., *L. scutellata*, F., &c. *Spondylis buprestoides*, L., forests. *Ergates faber*, L., rotten pine trees. *Oriocephalus rusticus*, L. *Deilus fugax*, F. *Stenopterus rufus*, L. *Parmena* sp.? burrowing in the sand, under sea-spurge, at Propriano; common. *Morimus lugubris*, F., on fig trees and poplars, Ajaccio and Campoloro.

Crioceris asparagi, L. (var. *campestris*, Panz.). *Clythra taxicornis*, F., *C. centromaculata*, Géné, *C. longipes*, F., *C. læviuscula*, Ratz., *C. floralis*, Ol. *Cryptocephalus signaticollis*, Suffr., *C. populi*, Suffr., &c. *Stylosomus tamaricis*, Suffr. *Colaphus ater*, Ol. *Chrysomela americana*, L., Bonifacio, *C. stachydis*, Géné, *C. quadrigemina*, Suffr. *Lyperus flavus*, Rosenh. *Hispa atra*, L.

Coccinella 12-guttata, Poda, *C. 14-punctata*, L. *Exochomus auritus*, Scriba, *E. 4-pustulatus*, L. *Brumus desertorum*, Gebler. *Hyperaspis reppensis*, Hbst. *Epilachna chrysomelina*, F., on sea-spurge; Bastia; Bonifacio. *Platynaspis villosa*, Fourcr. *Scymnus*, several spp.

The above are all the hitherto named *Coleoptera* taken by me. The period of my visits was the worst in the whole year for a coleopterist. From February to April is probably the best, before the long rainless summer has set in. Even in January the butterflies are out near Ajaccio. The Corsican individuals of well-known insects differ from those of South France in their smaller size and duller colours. The number of species met with is much less, but on the other hand many of them are peculiar to the island. I propose to take the *Orthoptera* next, with which I have a somewhat better acquaintance than with the *Coleoptera*.

[*To be continued.*]

Observations on Feronia (Pterostichus) puncticeps and pauciseta, Thoms.—Dr. Kraatz (Berl. Ent. Zeits., 1870, p. 221 *et seq.*) introduces Thomson's descriptions of these two species (published in 1867) to Teutonic coleopterists; and, whilst admitting that the acute Swedish author is certainly right, *pace* Dejean and Schaum, in establishing them, admits a preference (solely founded on long usage) for the Linnæan name *cuprea* for the larger of the two (*puncticeps*),—which name, after some apparent indecision, he finally adopts at p. 229. It seems to me, however, alike unreasonable and unjust to reject Thomson's name. The description of *cuprea* by Linnæus applies equally well (or, rather, badly) to two species, admitted by Kraatz to be certainly distinct, but the correct diagnosis of which has apparently escaped every one up to the present time but Thomson; and this, although such authorities as Dejean and Schaum had specially studied the *Carabidæ*. Both species are so common, that there could be no special merit in discovering them,—still less in failing to discriminate between them; and one of them (*pauciseta*, Th.) is, according to Kraatz, *l. c.*, without doubt, identical with the long prior *versicolor* of Sturm, as proved, not by description, but by figure. Now, this very identification at the eleventh hour shows the value of Thomson's descriptions; for Sturm's insect has never (save, perhaps, by British Coleopterists, who adopted its name from Mr. Waterhouse's Catalogue, without any ground for so doing) been recognized as a species, for the simple reason that no recognizable description of it existed. Now, however, it is to stand, elucidated by the reflected light of Thomson's characters for *pauciseta*, applied to Sturm's figure of *versicolor !*

Dr. Kraatz makes no mention of Baron Chaudoir's expressed opinion (L'Abeille', t. v, p. 220, 1868) that *Pœcilus versicolor* of *Stephens* is specifically distinct from *cupreus ;* and the reference to 'Barbaria' as the fatherland of the former by Gemminger and v. Harold seems especially to puzzle him,—the interpretation of those authors' scheme for localities indicated at p. 247 of vol. v of this Magazine having evidently not occurred to him.

As an additional argument against the proposed retention of the Linnæan name for Thomson's *puncticeps*, it may be urged that so precise an entomologist as Chaudoir considers (*l. c.)* the insect known as *versicolor* to be probably the true *cupreus* of Linnæus!—E. C. Rye, 10, Lower Park Fields, Putney, S.W.

Note on further British examples of Cryptophagus Schmidtii.—This species, recorded by me in the last No. of this Magazine, has escaped prior notice through some inadvertence; for I now find that Mr. E. W. Janson many years ago took (and correctly determined) more than one specimen of it, most probably at Whittlesea. —Id.

Note on a new species of Amara (Celia) from Belgium.—M. Putzeys, in the Compte-rendu (No. 56) of the Soc. Ent. de Belgique, has very recently described, under the name of *A. indivisa,* a species intermediate between *A. brunnea* and *A. rufocincta,* to which I think it advisable to draw attention, as the insect is not unlikely to occur in this country. The central tooth of the mentum in it is sharp and undivided, as in *brunnea,* to which it is not necessary here to compare it, as that species is not found in Britain. Compared with *A. rufocincta,* it is smaller, with the thorax more convex, much wider in front and more rounded laterally, and with the base of the elytra more strongly punctured.

M. Putzeys points out that the simple tooth of the mentum in *Acrodon* is reproduced in certain species of *Liocnemis* and *Bradytus ;* and is, therefore, not reliable as a generic diagnostic.—Id.

Notes on Wiltshire Coleoptera.—A short visit to Wiltshire in June last afforded me the opportunity of picking up a few beetles, some of which I will enumerate, as they do not seem to be of every-day occurrence. The neighbourhood of Froxfield, on the western border of the county, was the part chiefly examined. In a wood called Stype, I found under logs *Pterostichus oblongopunctatus,* and on aspens *Erirhinus costirostris,* and *Crepidodera nitidula* along with *C. Helxines* in fine variety. *C. aurata,* I may remark, seemed to be confined to sallows, while *C. Chloris* occurred only on willows by the water-side, both there and at Windsor. In the same locality, by sweeping the herbage, *Aphthona atratula, Abdera bifasciata* and *Mordellistena parvula* were taken. In a water meadow a few specimens of *Erirhinus schirrhosus* were secured, and one of *Pselaphus dresdensis*. *Gymnetron villosulum* was frequent on *Veronica Anagallis*. *Larinus ebeneus*, *Pachyrhinus 4-nodosus*, *Donacia affinis*, and *Graptodera lythri* were obtained in a marsh. At Figheldean on the Avon, I found *Aphodius arenarius*, *Rhinoncus inconspectus*, *Cionus verbasci*, and *Phyllotreta ochripes* and *brassicæ*; and in Marlborough Forest, *Silvanus unidentatus*, *Ademonia cratægi* and *Anthrenus varius*.—Robert Hislop, Blair Bank, Falkirk, *December 28th*, 1870.

Dryops femorata near Bristol.—This beetle occurs rather freely at Leigh. I meet with it nearly every year at ivy and sallow-bloom, as well as at "sugar." Should any readers of the Ent. Mo. Mag. want the species, I have no doubt I shall be able to supply them next April.—A. E. Hudd, Stapleton Road, Bristol, *10th January*, 1871.

On the reniform "inner" gall of Andricus curvator, Hartig.—At pg. 39 of the present volume, I alluded to the "kidney-shaped" gall of this species.

At pg. 157, at the desire of Mr. Kidd, I called the same object the "kidney-gall."

At pg. 210, Mr. Kidd informs me, that the former term is an error of my own, that "the gall is not kidney-shaped, but the case it contains being reniform, " suggested to him the name of kidney-gall."

I hasten to inform Mr. Kidd that, in my opinion, "reniform case," "kidney-shaped gall," and "kidney gall," are terms of precisely the same meaning, if applied to the object under consideration, because this gentleman's "reniform case" is the true gall of the insect, for the following reasons: —it adheres by contact only to the green outer shell; in it (*i. e.*, the case) the larva is born, on its juices it feeds, within its circuit the insect passes its whole metamorphosis, and the first operation of the mature insect, on leaving the pupal skin, is to pierce the wall of the case, exactly like that of any other gall, *i. e.*, in the shape of a round hole.

The true function of this reniform case is so well understood, that the Germans have long ago coined a special term for it, viz., "inner gall," in contradistinction to the outer shell. The latter plays a very subordinate part in the œconomy of the insect, which only passes through it once when arriving at the mature state.

I trust I have now shown satisfactorily, that, after handling galls almost daily for many years past, I have not committed the error of calling one "reniform," when it is not so; and, although I have no particular fancy for popular names of galls when introduced by the learned, yet I am ready to agree with Mr. Kidd that they are a great convenience in the absence of a knowledge of the insects.—Albert Müller, South Norwood, S.E., *January 2nd*, 1871.

What aid does the form of the Lepidopterous egg afford towards determining the position of certain species?—Lepidopterologists are not, as a rule, guilty of laying too much stress upon little things; indeed, it may be said with truth, that they have altogether neglected to avail themselves of almost any characters but those afforded by "colour of wings, streaks, spots, &c." It thus happens, I suppose, that, till within a very recent period, no attempt has been made to turn to account the characters presented by the form of the *eggs*, and these beautiful objects have been altogether neglected. The papers upon the ova of certain species of *Acidalia* and *Ennomos*, published by Mr. Hellins in this Journal, prove what good characters are afforded, in some cases, at least, by the form and size of the eggs. That the differences of form should give some assistance in determining the position or family of certain species, it is my object in this note to suggest; and as instances, I will select the cases of *Asteroscopus nubeculosa, A. cassinia, Diloba cæruleocephala*, and *Demas coryli*. The majority of, if not all, British authors have considered that these species should be placed among the true or false *Bombyces*, but Herrich-Schäffer, and some other European entomologists, have thought that their true position is among the *Noctuæ*. What aid then does the form of the eggs of these moths give us in trying to determine the question? The *Notodontidæ*, in which family *Asteroscopus* and *Diloba* are generally placed, have *smooth* eggs, with scarcely any sculpture, and not at all resembling the usual *Noctua*-type of egg, but these two genera have *ribbed* eggs (as have the majority of the *Noctuæ*)—that of *Diloba* especially resembling in shape the eggs of some of the *Bombycoidæ*. With the egg of *Demas* I am not acquainted, but it probably differs in form from the eggs of the *Liparidæ*, and resembles the *Noctua*-type.

There is nothing, I believe, in the structure of the larvæ of these three genera which would forbid their being placed among the *Noctuæ;* while the perfect insects resemble *Noctuæ* far more than they do *Bombyces*, the stigmata and some of the lines —so characteristic of the *Noctuæ*—being, except in *A. cassinia*, well defined. Why, therefore, these four species should be retained in the position they at present hold in the list of British *Lepidoptera*, I cannot, for my own part, see.

Herrich-Schäffer places *Demas* and *Diloba* in the *Bombycoidæ*, and *Asteroscopus* in the *Orthosidæ*, between *Trachea* and *Tethea*.—F. BUCHANAN WHITE, Perth, 20*th December*, 1870.

On the food-plant of Homœosoma saxicola.—With reference to Mr. Howard Vaughan's note on the food-plant of this species, I may mention that some larvæ, very probably belonging to this species, found by me in Galloway, fed in the heads of *Matricaria inodora, Senecio Jacobæa*, and *Achillea millefolium*.—ID.

On the sound to be produced by Halias prasinana.—Seeing in the "Annual" for this year a notice of the squeak said to be produced by this moth, I take the liberty of writing to state my belief that the insect (♂ or ♀, or both) does squeak, and with more reiteration than a bat. Some years since, when at St. Catharines, Argyleshire, I heard a strange twittering in the air, which, to the best of my belief, proceeded from two specimens of *prasinana* which came fluttering down from the foliage.—A. H. SWINTON, 7, Portsdown Road, Maida Hill, *January*, 1871.

⁂ Mr. Swinton has dissected specimens of the insect, and sent us drawings and descriptions of a structure between the thorax and abdomen, by which he believes the sound to be produced. As there is no apparent external tympanum, such as exists in *Setina*, &c., and as the dissections were made from dried specimens, we have not re-produced them, but urge upon him and others the advisability of examining the living insect during next season, so as to set the question at rest.—EDS.

Notes on the egg and young larva of Thecla rubi.—The capture of the larva of this species by Messrs. W. H. Harwood and C. G. Barrett, enabled Mr. Buckler to describe it in various stages of growth at p. 38 of Vol. vi of E.M.M. And to the knowledge of its proper food-plant, thus obtained, I owe it that I am enabled now to offer a description of the egg. In former years I have shut up as many as twenty imagos at one time, and though I furnished them with blackberry buds and blossoms, as well as with other flowers and plants, I could never get an egg. But this last summer I caught a single wasted female, and having put her in a cylinder with a few twigs of broom (*Cytisus scoparius*), obtained from her half-a-dozen eggs immediately.

The butterfly was caught, and the eggs laid on June 17th; the larvæ were hatched on the 24th; I have one or two notes of various moults, but finding by the middle of July that Mr. Buckler had already anticipated all that could be said after the larva had attained any size, I ceased from making any further record.

The egg is roundish, full and globose, but with a central depression on the upper surface; green in colour, but covered all over with a reticulation of *double* white threads forming for the most part triangular meshes; the central depression is more faintly reticulated than the rest. Five out of six eggs were laid on the stems of the broom twigs.

The newly-hatched larva is dirty-greenish in colour, with the head black, and is covered with hairs, which for its size may fairly be called long. Could I have found flowers of broom, my larvæ would have fed better, and grown faster; failing flowers, they ate young leaf-buds, and by July 9th, I see they had attained not much more than one-twelfth of an inch in length, and were very stumpy in proportion, being then brownish in colour, with a darker brown dorsal line bordered on each side by a row of yellowish streaks. After this the colour changed to green, and the whole appearance agreed as aforesaid with Mr. Buckler's description.—J. Hellins, Exeter, *November* 11*th*, 1870.

Note on breeding Deilephila galii.—At page 72 of his "Lepidopterists' Guide," Dr. Knaggs gives a receipt for forcing pupæ—recommended by the fact, that Mr. Boswell Syme had, by it, succeeded in bringing out "*all*—the *galii*, which he "has at various times had the good fortune to meet with in the larval state;" now, though Mr. Boswell Syme reckons his *galii* by hundreds, and I reckon mine only by units, yet it may be of use to some of our friends to say that I have just succeeded in rearing, by this method, four moths from four pupæ—all my stock.

I began the forcing process a few days after Christmas, the first moth appeared on January 18th, the second on the 19th, the third on the 22nd, and the fourth on February 9th, all perfect and of fine colour.

After this, I never mean to lose a Sphinx pupa again.—Wm. Buckler, Emsworth, *February* 11*th*, 1871.

Abnormal appearance of Smerinthus populi.—A male specimen of this species rather astonished me by "putting in an appearance" in one of my breeding-cages last month. The pupa from which it emerged was dug in September, and had been kept with several others of the same species in a cold room. What induced this one to come out so many months before his time?—A. E. Hudd, Stapleton Road, Bristol, 10*th January*, 1871.

Notes on Peronea comariana, proteana, and potentillana.—That *proteana* and *comariana* are only two different forms of one species seems well established by my own experience in breeding them. On the 29th of May, 1869, I collected a considerable number of larvæ on *Comarum palustre.* These I carefully separated, and kept the two forms apart, yet from each of these separate batches I bred both *comariana* and *proteana.*

Two principal forms of the larva may be thus distinguished—*a*, with the head very pale yellowish-brown, gelatinously transparent and spotted with brown, the body whitish-green or greyish-green, with the legs, anal plate and thoracic plate of the same colour, the latter margined with black posteriorly; and *b*, with the head and thoracic plate shining black, the body dirty whitish, with scarcely a tinge of greenish, the dorsal line broad, darker grey.

I also separated some intermediate forms: one almost like *a*, but the body of a fainter, whitish-yellow colour; another resembling *a*, but whitish-green, with faint grey dorsal line, and two sub-dorsal lines, and with the head spotted above with very pale yellowish-brown. I had expected to breed *comariana* from *a* and *proteana* from *b*, but I reared both forms from each, and also some intermediate varieties.

Of the intermediate forms of the larvæ, the first-mentioned produced a brownish-yellow *proteana* (resembling *comparana*), with black costal spot, the other produced a typical pale yellow *comariana*, entirely without any trace of a costal spot.

Madam Lienig looked upon *proteana* (which at that time was not described) as a small *comparana*, and it can only be in reference to this *comparana* that her conjecture arose that *comariana* might be a variety of that species. Lately I received also from Professor Zeller *proteana* with the label—*comarianæ*, var.

I have taken *comariana* at Magnusholm between the middle of July and the middle of September. Baron Von Huene took it at Lechts and Tois from the 13th of August onwards, and then again on the 1st of April, hence evidently hybernating.

My bred specimens all appeared in the latter half of June, after a very short pupation, so that it is most probably double-brooded.

In Wilkinson's British Tortrices (a work which only came into my hands after I had completed my Fauna) there is mentioned after *comparana*, at p. 167, a *potentillana*, which, according to the characters there assigned to it, can hardly be anything else than *comariana*, Z., although the food-plant of the larva there indicated is not *Comarum palustre*, but strawberry.—J. H. W. Baron Nolcken (translated from his "Lepidopterologische Fauna von Estland, Livland und Kurland).

Captures of Lepidoptera in Carmarthenshire.—The following moths are among the best of my captures during last season. With the exception of four or five, all were taken in my own garden.

S. ocellatus, common; *populi*, scarce; *A. Atropos*, very common; *S. ligustri*, common; *D. livornica*, one specimen given me at the end of May, and I saw another hovering at some flowers a few days after; *C. porcellus*, one larva; *C. Elpenor*, common; *M. stellatarum*, very abundant; *Hepialus sylvinus*, scarce; *M. miniata*, common; *H. dominula*, common; *D. mendica*, very common, I took a female as early as April 20th; *E. dolobraria*, scarce; *E. tiliaria*, scarce; *H. abrup-*

taria, common; *G. obscurata*, common; *T. amataria*, scarce; *L. viretata*, one specimen; *A. badiata*, common; *derivata*, common; *N. dromedarius*, one at light; *T. batis*, common; *derasa*, very abundant; *B. glandifera*, very common; *A. ligustri*; *Leucania comma*, common; *L. putrescens*, two specimens at sugar; *H. popularis*, common at light; *C. Cytherea*, common; *M. albicolon*, common; *R. tenebrosa*, common; *Agrotis valligera*, common; *puta*, abundant; *suffusa*, common; *saucia*, very abundant; *lunigera*, common; *lucernea*, scarce; *præcox*, one at sugar; *T. fimbria*, common; *N. neglecta*, very abundant; *T. rubricosa*, common; *munda*, scarce; *C. xerampelina*, I took one specimen at sugar on the 4th September, 1869; *Epunda nigra*, very common; *lichenea*, very common; *lutulenta*, scarce; *H. adusta*, common; *H. suasa*, common; *C. exoleta*, common; *vetusta*, rare; *Heliothis marginata*, rare; *X. rhizolitha*, not common; *semibrunnea*, common; *P. festucæ*, one specimen; *iota*, common; *P. ænea*, scarce; *Diasemia literalis*, one specimen at light.—E. Kaye, Langharne, Carmarthenshire, *December*, 1870.

Captures of Lepidoptera near Huddersfield, &c.—The following is a list of some of the Lepidopterous insects I have come across in this neighbourhood during the season of 1870. Where the date is given, it refers to the first day on which the species was noticed:—*Colias Edusa*, a male specimen was taken at Shepley by a man named William Bennett, who gave it, unset, to me; I believe it is eleven years since a specimen was taken here previously. *Macroglossa stellatarum*. *Sesia philanthiformis*, 8th July, bred from pupæ sent to me from Scotland by Dr. White. *Amphydasis betularia*, unusually common and distributed. *Cabera exanthemaria*, Prince Wood, not a very common species here. *Scodiona belgiaria*, 23rd April, larvæ common on ling; 4th June, imagos at rest on bare parts of the moor; the males are very conspicuous, females approach nearer to the colour of the ground; Crosland and Greetland heaths. *Larentia multistrigaria*, 2nd April, Black Fir wood and Grimescar. *Emmelesia decolorata*, larvæ in seed-capsules of *Lychnis*. *Eupithecia valerianata*, 7th June, bred from pupæ sent to me from Derby. *E. fraxinata*, 30th July, larvæ not uncommon on ash at Birkby and Grimescar. *E. subnotata*, 24th June, very plentiful, Clare Hill and Birkby. *E. absynthiata*, 29th June, bred from larvæ sent to me by Mr. G. B. Longstaff. *Lobophora hexapterata*, bred from larvæ sent to me from Scarborough. *Melanippe galiata*, 28th June, very abundant at Grimescar, where *Galium saxatile* grows; the females deposited their eggs freely if a small sprig of this plant were placed in each chip box. *Scotosia dubitata*, 5th September, not uncommon, Clare Hill and Whitley Lower. *Cidaria miata*, 18th August, bred from pupæ sent to me from Richmond; I entirely failed in my endeavours to keep the females alive to obtain eggs. *C. prunata*, 26th July, Clare Hill. *C. populata*, common amongst *Vaccinium myrtillus* at Linthwaite. *Tanagra chærophyllata*, plentiful in hay fields. *Cilix spinula*, 6th June. *Pygæra bucephala*, common and distributed; this species, though usually considered universally common, I have found to be by no means so here, until this season, when it occurred in gardens even close to the town. *Nonagria lutosa*, 4th October, Clare Hill. *Hydrœcia nictitans*, 2nd August, common at sugar, Clare Hill and Prince Wood. *Charæas graminis*, 3rd August, near Clare Hill. *Apamea oculea*, 6th May, larvæ in stems of *Dactylis glomerata* (cocks' foot grass). *Miana fasciuncula*, very abundant at sugar. *M. literosa*, 22nd July, at sugar. *M. arcuosa*, plentiful at Grimescar. *Triphæna ianthina*, in the larva state in spring. *Polia flavocincta*, larvæ not uncommon in the garden in June on "everlasting pea;" imagos in September, at sugar and at rest. *Dasypolia Templi*, 1st April, a specimen at rest on an elm twig beside a gas lamp at Birkby; in the autumn a man worked two days for me, turning over stones, but only found two specimens, Shepley. *Heliothis marginata*, 8th June, bred a good series from larvæ sent to me from Scarborough, and which I fed on *Polygonum persicaria*. *Mania maura*, 12th August, Clare Hill. *Ebulea sambucalis*, an elder tree in the garden had the lower part entirely stripped of its leaves with the great abundance of the larvæ of this insect.—Geo. T. Porritt, Huddersfield, *December 23rd*, 1870.

Captures of Lepidoptera near Norwich.—On the 14th July last, I walked over to a place some little distance the other side of Norwich, in which *Oxyptilus teucrii* occurred in some numbers last year. Here I again found the pretty little plume, among *Teucrium scorodonia*, and flying over it in plenty towards evening, and was also highly pleased to find *Sophronia parenthesella* flying rather commonly after sunset over very short and stunted heath: its habit was to start up at one's feet and dart rapidly away with a zigzag flight, settling again at a short distance, and specimens continued to turn up in this way until it was too dark to catch them.

Earlier in the afternoon I had obtained, by beating a neighbouring strip of fir trees, several specimens of *Batrachedra pinicolella*, as well as *Thera firmaria*, *Sericoris bifasciana* and *Stigmonota coniferana*.—Chas. G. Barrett, Norwich, 13*th October*, 1870.

Teichobia Verhuellella feeding on Asplenium trichomanes.—Early last spring my father, spending a few days at Ashburton, in Devon, and finding some of the small ferns very plentiful there, sent me a lot of plants, to console me, I suppose, for living in a neighbourhood in which even *Polypodium* is hardly common, and *filix-mas* is quite an object of interest. These were doing very well under glass, when one day in April I noticed that some of the pinnæ of a plant of *Asplenium trichomanes* were gnawed by an insect, and a very little examination enabled me to find two larvæ, easily recognizable as those of *Teichobia Verhuellella* at work underneath them. Their mode of feeding was to devour the whole of the substance of each pinna, except its upper cuticle—which was left partially transparent—and the fructification, which was carefully added to the case under which each larva fed, consequently the case increased in size as the larva grew. This case lies flat upon, or rather under, the pinna upon which the larva is feeding and never appears to be raised on its end like those of the allied species, otherwise it rather resembles in texture and roughness, though not in shape or position, the loose outer case of *Diplodoma marginepunctella*. The larva carries it from place to place as it feeds, and ultimately assumes the pupa state in it. One of mine attached it to the *upper*-side of a frond and the other laid it across the under-side of the rachis and two pinnæ. This was at the end of May, and the moths appeared on June 8th and 9th.

This seems to be a deviation from the usual habit of the larva of this species, which is described as "burrowing under the fructification of *Asplenium ruta-muraria* and *Scolopendrum vulgare*." The locality too is worth noting as the insect is most likely common there.—Id.

Note on Latrodectus malmignatus, Walck.—Last August, I took a ♀ of this fine spider, among the ruins of a Genoese fort on the Bay of Ajaccio. Two egg-bags occurred in the same situation, one belonging to the above ♀. The young are now hatching, and may be perhaps 150 in number. Can any gentleman skilled in *Arachnida* suggest a method of rearing them? The adult spider has the abdomen as large as a grape, black, with vermillion spots (see Suites à Buffon, Aptères, t. i. 642, Atlas, pl. xiv, fig. 4 D).—T. A. **Marshall**, Barnstaple.

Reviews.

"Synopsis Coleopterorum Europæ et confinium anno 1868 descriptorum," by G. R. Crotch, M.A.—Williams and Norgate, London, 1871. In this useful pamphlet of 68 pages, the author, following up De Marseul's idea, has briefly noticed all such species of European *Coleoptera* described during 1868 as have come under his observation; and from his intercourse with continental Entomologists, and knowledge of the current literature of the science, no one could be more competent than he to perform such a task. From his preface, it would appear that the work is likely to be continued; the fasciculus for 1869 being promised shortly, and that for 1870 in April next.

It is entirely in latin (with the exception of a few accidental English words at pp. 67 and 68), and consists of reproductions or abbreviations of the diagnoses of the species described, with very brief differential characters. It also contains rectifications of nomenclature, &c., noticed during 1868, and tabulated lists of *all* species, with localities (but with no characters for *new* species), comprised in such monographs as those of Tournier, Seidlitz, Capiomont, &c., thus departing slightly from the main scheme. The work is so certain to be of great and universal use to Coleopterists (especially if published for the future as rapidly as the preface indicates), that we venture to suggest the addition of the absolute and precise date of publication to the reference of each species: such an addition would much increase its value, especially to those who have no access to the works quoted; and although the dates may, in the majority of cases, be readily enough found by those who possess such works, still it often happens that extrinsic evidence is required before the exact date of publication can be certified,—and such evidence, if not obtainable by Mr. Crotch, is little likely to be in the power of any one else, in this country at least.

The particular clearness and excellence of the type employed (and, presumably, the great saving of cost) must be set off against the somewhat numerous typographical and other errors in this fasciculus; which, printed at Jena, necessarily cannot have been so much under the author's eye as is usually the case in this country.

"A Catalogue of the Insects of Northumberland and Durham (Revision of Coleoptera," by Thomas John Bold, Newcastle-on-Tyne, 1871 (from the Nat. His. Trans. of Northumb. and Durham, vol. iv). Mr. Bold—upon whom alone the task has fallen, through the temporary attraction to other branches of scientific observation of his well-known former colleague, Mr. Hardy,—has done well in collecting from the Trans. of the Tyneside Nat. Field Club, and Nat. His. Trans. of

North. and Durh., his numerous notes of addition and correction affecting the original Catalogue of Northumbrian *Coleoptera*. The result of his labours appears to be the addition of upwards of 400 species to the local list, raising it to 1527 species, as compared with the 1172 sp. of the original Catalogue, of which, however, many were erroneously enumerated. At p. 109, Mr. Bold describes a new species of *Scymnus*, under the name *lividus*, and compared with small pale *discoideus*, from which it would appear to differ in being more oval and much more finely and evenly punctured. An indication of a possibly new species of *Gyrophæna* and a record of *Aleochara villosa*, Mann. (?),—a species new to the British list, are given at p. 114. It is much to be regretted that the result of Mr. Bold's conscientious labour should be disfigured by an inordinate number of printer's errors.

PROCEEDINGS OF THE HAGGERSTON ENTOMOLOGICAL SOCIETY.—Mr. Eedle, Vice-President, in the Chair.

1870. *October 6th.*—Mr. Elisha exhibited some very large specimens of *Epunda lichenea*. Mr. W. Harper exhibited preserved specimens of the larvæ of *Deilephila galii*. Mr. Pryer exhibited *Leucania albipuncta*. Mr. Eedle exhibited two specimens of the rare *Pachetra leucophæa*. Mr. Boden exhibited fine specimens of *Heliothis marginata*.

October 13th.—Mr. J. Russell exhibited specimens of *Cymatophora ocularis*, *Mamestra abjecta*, *Agrotis cinerea*, *Catocala sponsa*, and *C. promissa*. Mr. Eedle brought for exhibition a captured specimen of *Deilephila galii*. Mr. Franklin exhibited *Epunda lutulenta*. Mr. Moore exhibited a beautiful specimen of *Xylina Zinckenii*, captured by him in Darenth Wood, on the 2nd of the month.

October 20th.—Mr. E. Barlow, President, in the Chair. Mr. Lormier exhibited preserved larvæ of *Smerinthus ocellatus*, *S. tiliæ*, *S. populi*, and *Dicranura vinula*. Mr. Healy exhibited some living larvæ of *Coleophora therinella*.

October 27th.—Mr. T. Eedle exhibited specimens of *Ennomos erosaria* and *Halias quercana*. Mr. J. Moore exhibited *Lythria purpuraria*. Mr. Jackson exhibited an example of *Vanessa Atalanta* having a larval head. Mr. J. Russell exhibited fine specimens of *Emmelesia tæniata*.

97 members attended the meetings last month.

November 3rd.—Donations to the cabinet.—Mr. J. A. Clark exhibited specimens of *Cossus ligniperda*, *Catocala nupta*, *Zygæna filipendulæ*, *Erebia Blandina*, *Macroglossa stellatarum*, and *Arctia lubricipeda*. Messrs. Burry and Bartlett exhibited specimens of *Phlogophora empyrea*. Mr. Eedle exhibited fine specimens of *Argyrolepia æneana*.

November 10th.—Mr. Scott, who was present as a visitor, exhibited a remarkable variety of *Argynnis Paphia* ♀.

November 17th and 18th.—The Society's annual exhibition took place on the evenings of these dates, and proved a great success.

November 24th.—Donation to the funds.—Mr. T. Cooke, of 513, New Oxford Street, having presented the funds of the Society with one guinea, an unanimous vote of thanks was passed to that gentleman for his kindness. Mr. J. A. Davis exhibited specimens of *Ptilophora plumigera* and *Notodonta dodonæa*.

During this month 77 members attended the meetings of the Society.

December 1st.—Mr. J. Peed, Mr. Scott, and Mr. E. Fitch, were elected members. Mr. Davis exhibited *Odontia dentalis.* Mr. Boden exhibited specimens of *Eupithecia consignata* and *Xanthia aurago. Half-Yearly Meeting.*—Messrs. Barlow, Harper, and Gates, were elected to fill the respective offices of President, Treasurer, and Secretary; Vice-President, Mr. Bush; Assistant Secretary, Mr. Burry; Librarian, Mr. Healy; Curator, Mr. Davis. *Committee of Management.*—Messrs. Bramley, Bryant, Bartlett, Eedle, Healy, and Woodage.

December 8th.—Mr. Meek exhibited specimens of *Lemiodes pulveralis* and *Argyrolepia æneana.* Mr. Barlow exhibited living larvæ of *Zenzera æsculi.*

December 23rd.—Mr. Danby was elected a member. Mr. J. A. Clark exhibited a specimen of *Catocala fraxini.* Mr. Meek exhibited *Acronycta alni* and *Madopa salicalis.* Mr. Eedle exhibited a variety of *Pieris rapæ*, having the apical spots much larger than usual, also the veins of the under-wings black.

90 members attended the meetings this month.

1871. *January 5th.*—Mr. E. Barlow exhibited specimens of *Selenia illustraria* and *Pericallia syringaria.*

January 12th.—Mr. Elisha exhibited specimens of *Phoxopteryx ramana, Stigmonota lunulana,* and *Catoptria pupillana.*

January 26th.—Donation to the cabinet. Six specimens of *Sesia philanthiformis* by Mr. Warrington. Mr. Boden exhibited specimens of *Cirrædia xerampelina, Acronycta auricoma, Acosmetia caliginosa,* and *D. rubiginea.* Mr. Healy exhibited a box showing the œconomy of *Euura gallæ*, Newman, a species of saw-fly bred by him from larvæ forming galls on the leaves of *Vaccinium vitis-idæa,* discovered by Mr. Eedle in Scotland (Perthshire), in the month of June, 1869, the imagos being produced the following May.

83 members attended the Society's meetings this month.

NEWCASTLE-ON-TYNE ENTOMOLOGICAL SOCIETY.—The first Exhibition of this Society was held on the 17th inst., in the Curators' Room of the Natural History Society's Museum, which has been kindly lent to the Society to hold its Meetings in.

Amongst the exhibitors—Messrs. Hedworth, Crossling, and W. M. Hamilton showed cases representing the British butterflies; Messrs. D. P. Morrison and F. Barkas showed several cabinet drawers of butterflies and moths; Messrs. Hedworth, Richardson, and Bulman showed several cases of butterflies and moths; Messrs. Johnston and J. Hamilton showed two cases of large silk moths, many of which had been reared by themselves; Mr. Maling showed a case containing Swiss butterflies and moths; Mr. Johnston showed a case of continental types of rare and reputed British *Lepidoptera*, also several fine varieties of *A. betularia* and *A. caja;* Messrs. Johnston and Henderson showed cases of *Coleoptera* and *Diptera;* Mr. C. Eales showed a very fine case of *Tineina*, amongst which were several new species discovered by him during the past year.

This is the first Exhibition the Society has held, and it was quite a success, being largely patronized by visitors, although the meeting had not been publicly announced.

During the course of the evening, the Rev. W. L. Kay delivered a very interesting address.

ENTOMOLOGICAL SOCIETY OF LONDON, *23rd January*, 1871, ANNIVERSARY MEETING. A. R. Wallace, Esq., F.Z.S., President, in the Chair.

The following gentlemen were elected Members of the Council for 1871:—Messrs. Butler, Dunning, Fry, Grut, Higgins, McLachlan, Parry, Pascoe, E. Saunders, Stainton, S. Stevens, A. R. Wallace, and Westwood.

Mr. A. R. Wallace was re-elected as President, Mr. S. Stevens as Treasurer, Mr. McLachlan, with Mr. F. Grut, as Secretaries, and Mr. E. W. Janson as Librarian.

The President read an address, for which, and for his services during the past year, Mr. McLachlan proposed, and Mr. Stainton seconded, a cordial vote of thanks: Mr. Wallace replied. Mr. Pascoe proposed, and Major Parry seconded, a vote of thanks to the other officers, coupled with the name of Mr. Dunning, the retiring Secretary, who returned thanks.

6th February, 1871.—A. R. Wallace, Esq., President, in the Chair.

Pastor Kawall, of Pussen, Kurland, was elected a Corresponding Member.

Mr. Bond exhibited several *Lepidoptera*, taken by Mr. Eedle last season in Perthshire, viz.: *Pachnobia alpina*, the third British example; a dark variety of *Thera juniperata*, the ordinary form in that district, and appearing two months earlier than in the South of England; *Gelechia boreella;* and a piece of web formed by the gregarious larvæ of *Hyponomeuta evonymella (padi,* Z.), over a yard long. Also a specimen of *Vanessa Atalanta*, bred by a metropolitan collector, which still bore the larval head. Professor Westwood said he could remember only four recorded instances of similar monstrosities, viz.: *Nymphalis populi*, *Gastropacha quercifolia*, *Dytiscus marginalis*, and a *Syrphus*.

Mr. Bond laid before the meeting beautifully executed photographs of the eggs of bird-parasites, from slides prepared by Mr. Norman.

Mr. Müller exhibited several oak-galls from Morocco, collected by Mr. Trovey Blackmore.

The Rev. H. S. Gorham exhibited *Oxytelus fulvipes*, Er., from Needwood, new to Britain.

Prof. Westwood exhibited drawings of a singular *Coccus* from the under-side of the leaves of a Siamese *Cypripedium*. The male scales were remarkable for the presence of six raised lines, continued as spine-like processes beyond the shield.

Mr. Stainton remarked that a *Coccus* on Palermo lemons had lately come under his notice, distinct from the ordinary *Coccus* of the orange, and which had the peculiarity of causing the space immediately around the scale to remain green, when the other portion of the rind had acquired the characteristic lemon-colour.

Professor Westwood further exhibited a minute *Corixa* (*C. ovivora*, Westwood) which was destructive to the ova of fresh-water fishes in India.

Mr. Butler read "Descriptions of a new genus and six new species of *Pierinæ*."

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA.*

(Revision of, and additions to, the *Aphrophoridæ* and *Ulopidæ*).

BY JOHN SCOTT.

(*Continued from page* 196).

Some few families of the *Homoptera* are but poorly represented in this country; so poorly indeed, that it is not uncommon to find a family represented by a single genus, and that genus by but one species; whilst the chances of increasing their numbers are, in most instances, hopeless. As examples, take the *Issidæ* and the *Cercopidæ:* the former only boasts of the well-known *Issus coleoptratus*, Fab., and the latter of the equally well-known *Cercopis vulnerata*, Illig. (*sanguinolenta*, Panz., *nec* Lin.). Both of these insects appear to belong exclusively to the south, as I have hitherto not seen either of them, nor am I aware of their having occurred, in Scotland or the northern or midland counties of England. Of Ireland, as usual, I can say nothing; nor will much be learned until she has a Birchall in Bugs, as she has in Butterflies. Why *vulnerata* has not been noticed in Scotland seems strange to me, as its wide distribution certainly leads to the conclusion that it ought to be found there. Of the *Tettigometridæ*, we did not possess a single species until the year 1866, when the sharp eye of the Rev. T. A. Marshall led him to detect one amongst his captures in Pembrokeshire. The same species had also been taken in the Isle of Wight by Mr. J. C. Dale, and was subsequently recognized by Mr. Douglas amongst that gentleman's stores. I refer to the *Tettigometra impressopunctata*, L. Duf., a species unknown to Fieber, who in the Verhandl. d. k. k. zool. bot. Gesell., 567, 14 (1865), describes it under the name *frontalis*. The insects of this genus are very similar in appearance to *Acocephalus*, and perhaps still more resemble *Ptyelus;* but the shape of the anterior margin of the pronotum and the hinder tibiæ (without spines) will lead any one at a glance to discover whether they are mixed up in collections with either of these genera. On the continent, some 30 species are known, and it is just within the range of probability that we may add *T. atra*, Hagenbach (taken by Flor), *T. læta*, H. Sch., and *obliqua*, Panz. (said by Fieber to occur in Germany); the others are all from places too far south to permit us to hope of their being correctly enumerated as British.

The above, I believe, are all the families interposing between the *Cixiidæ*, which I have already dealt with, and the *Aphrophoridæ;* and I have not thought it necessary in this paper to do more than point to them in passing, as they have been already sufficiently described in this country.

Section.—Cercopina.

Family APHROPHORIDÆ.

Aphrophorida, Stål, Hem. Afr., iv, 66 (1866).

Head: crown almost horizontal and somewhat flattened; anterior margin sometimes rounded, generally obtusely angulated; *clypeus* of variable length, reaching to or beyond the 1st pair of coxæ. *Rostrum* 2- or 3-jointed. *Ocelli* 2, or sometimes wanting; when present, placed near the posterior margin of the crown, and more or less remote from the eyes.

Thorax: pronotum trapezoidal or hexagonal, anterior margin rounded or obtusely angulated, posterior margin frequently deeply angulate-emarginate; *scutellum* triangular. *Elytra* coriaceous; *clypeus* acuminate. *Wings:* the inferior nerve furcate from the base or before the middle. *Legs: posterior tibiæ* armed with one or two spines.

I.—Ocelli almost equidistant from each other and the eyes.

A.—Clypeus reaching to the apex of the 1st pair of coxæ.

Genus 1.—*PTYELUS.*
„ 2.—*LEPYRONIA.*

II.—Ocelli half again as far from the eyes as from each other.

B.—Clypeus extending beyond the 1st pair of coxæ.

Genus 3.—*APHROPHORA.*

Genus 1.—PTYELUS, Lep. et Serv.

Head short, including the eyes about as wide as the pronotum: *crown* depressed, with a distinct plate in front as wide as the ocelli, and having a somewhat curved, transverse channel at its base, anterior margin more or less obtusely rounded. *Face* convex, somewhat sulcate transversely. *Clypeus* reaching to the 1st pair of coxæ. *Rostrum* with two joints of equal length, reaching to the 2nd pair of coxæ. *Antennæ* placed in a deep recess immediately underneath the crown and adjoining each eye, the somewhat conical basal joint of the bristle visible from above. *Ocelli*, between themselves and the eyes, equidistant.

Thorax: pronotum hexagonal, anterior margin obtusely angulate, lateral margins very short, posterior margin deeply angulate-emarginate. *Scutellum* flattish, longer than broad. *Elytra* longer than the abdomen, narrowed posteriorly, apex rounded. *Legs: posterior tibiæ* with two large spines exteriorly, apex with a 'vandyked' fringe; *tarsi*, 3rd pair, 1st and 2nd joints with a vandyked fringe at the apex.

I.—Crown short, along the posterior margin almost four times wider than the breadth across the centre.

Ferruginous-brown. Elytra: corium with two large, somewhat triangular, white patches, next the anterior margin, placed one near and one beyond the middle; at the apex of the clavus, a short, transverse, white streak.

var. 1. White, or greenish-white; scutellum, except the apex, black. Elytra: corium, the anterior margin before the middle with a somewhat square dark brown patch, and a broad, oblique, dark brown band, extending from beyond the middle to the apex of the clypeus.

var. 2. Dark brown. Elytra: corium, anterior longitudinal half, white, or yellowish-white.

var. 3. Black. Head, and anterior half of the pronotum, yellowish-white. Elytra: corium with a faint yellowish spot towards the apex of the anterior margin................1. ***spumarius***,* L.

Pale cinnamon-brown, or fawn colour. Elytra: corium with two large white patches of irregular shape next the anterior margin, placed one before and one beyond the middle.... 2. ***campestris***, Fall.

Yellowish-brown to dark brown, with a faint bronzy hue. Elytra: corium with a white streak along the anterior margin, extending from the base to past the middle, beyond which is a large white patch. ....3. ***exclamationis***, Thunb.

II.—Crown somewhat elongate; along the posterior margin scarcely three times wider than the breadth across the centre.

Pale yellow. Elytra: corium with a black streak along the 1st nerve; remaining nerves pale brown ....4. ***lineatus***, L.

The members of this genus appear strictly to be attached to grasses and other low plants, and never to occur upon trees or shrubs, except by accident.

P. spumarius is certainly the commonest of all our species of *Homoptera*, and is met with throughout the whole summer everywhere and by everybody.

P. exclamationis is the smallest of the four species; and, although not common, it is widely distributed. Leicestershire (Marshall); Glanville's Wootton (Dale); Mickleham, Sanderstead Downs, Richmond Park, Seaford Downs, &c. (Douglas and self). Time of appearance, July and August. Length, 1¼ lines.

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* There are other varieties, but the above examples are sufficient here.

P. lineatus. Of the size of *spumarius*, and similarly haired, but by no means such a common species. It rarely varies from the characters given above, the length of the crown alone being sufficient to separate it from the last named. In the London district it has occurred at Weybridge and Beckenham, in July and August. Length, 2½ lines.

The above have all previously been recognised as British; but, as *campestris* is now for the first time brought forward, I give a description in detail.

I.

Genus 1.—PTYELUS, Lep. et Serv.

Species 2.—PTYELUS CAMPESTRIS.

Cercopis campestris, Fall., Hem. Suec., Cicad., ii, 20, 7 (1826); Zett., F. Lap., 516, 3, ♂ ♀ (1828); Ins. Lap., 287, 4 (1840).

Ptyela campestris, H. Sch., Nom. Ent., i, 67 (1835).

Ptyelus campestris, Flor, Rhyn. Liv., ii, 125, 3 (1861).

Crown short; along the posterior margin almost four times wider than the breadth across the centre.

♂ ♀. Pale cinnamon-brown or fawn colour, clothed with very short, depressed, pale yellow hairs.

Head: crown, on the sides very finely wrinkled; front plate delicately punctured and with a fine central keel; its margins, and the transverse channel at its base, very narrowly black. *Face* convex, pale brownish-yellow, with a faint central longitudinal channel, on each side of which are 9 or 10 fine, transverse, whitish streaks. *Antennæ* pale brownish-yellow.

Thorax: pronotum finely punctured, with two channels down the middle placed near to each other, and leaving a very narrow and somewhat depressed middle keel between them; on each side, near the anterior margin, two or three deep foveæ. *Scutellum* flat, slightly reddish or brownish-yellow. *Elytra* pale cinnamon-brown or fawn colour, sometimes dark brown: *clavus* very finely punctured, apex generally with a short, fine, black streak: *corium* very finely punctured; next the anterior margin are two large white patches, one before the middle extending inwardly as far as the 1st nerve, the other beyond the bifurcation of the 1st nerve, and extending to its inner branch, its exterior margin generally bilobed; the space between the two patches and the exterior margin of the second patch, for a short distance, generally darker than the other portion of the corium; next the apex of the clavus a short white streak, followed by a similar black one. *Sternum: mesosternum*, in the middle, black. *Legs* yellow or brownish-yellow. *Tibiæ*, spines and fringe at the apex of the 3rd pair, black; *tarsi*, 3rd joint, and claws of all the pairs and fringes of the 3rd joint, tipped with black.

Abdomen above, in the middle, black, sides broadly yellowish or reddish, or brownish-yellow; underneath, similar to the upper-side; *genital segment* yellow.

Length, 1¾ lines.

[*To be continued.*]

NOTES ON *CARABIDÆ*, AND DESCRIPTIONS OF NEW SPECIES (No. 2).

BY H. W. BATES, F.Z.S.

TEFFLUS HAMILTONII, n. sp.—*T. Megerlei dimidio minor, niger, antennis brevibus thoracis basin paulo superantibus; thorace lato, pone medium rotundato-dilatato nequaquam angulato, lateribus pone dilatationem haud sinuatis, supra plano, grosse confluenter punctato, marginibus haud reflexis; elytris sub-oblongo-ovalibus, apice abrupte declivibus, obtuse rotundatis, supra costis alternatim paulo angustioribus; corpore subtus lævi.*

Long. 1 *in.* 4 *lin.* *Lat. thoracis* 4 *lin.* 2 *exempl.* ♀.

Distinguished from all other known species by the broadly rounded sides of the thorax, the short antennæ, and the somewhat oblong-oval form of the elytra. The width of the thorax is exactly 4 lines, whilst its length in the middle is only 3⅛ lines; and its sculpture differs from other species in consisting of very large rounded punctures, confluent chiefly in a longitudinal direction, and leaving elongated, irregular, smooth interstices. The elytra are much fuller at the shoulders than in any other species, and their extreme apex is not flattened out as in *T. Megerlei;* the alternately narrower costæ reach very nearly to the base, and the sculpture of the interstices consists in very regular transverse carinæ, only slightly tuberculated in the middle. In size this species does not differ from *T. carinatus*, Klug, so beautifully figured (under the synonym of *T. Thomsonii*) in the French 'Annales,' 1856, t. 8, f. 2, but the sides of the thorax in that species form very distinct angles, and the elytra are narrowed off at the shoulders. In the form and sculpture of the elytra *T. Hamiltonii* very much resembles *T. violaceus*, Klug, which differs in its elongate thorax, in colour, and in the punctured episterna of the prothorax.

This interesting new species was discoverd by Charles Hamilton, Esq., author of the "Sketches of Life and Sport in South-Eastern Africa," on his recent journey in Angola. About 10 specimens were found, all agreeing in their specific characters. I am indebted for the pair in my collection to this adventurous traveller, and to his friend F. G. H. Price, Esq. A male in Mr. Janson's collection differs only in the thorax being slightly narrower, and the elytra less full at the shoulders.

Genus PERICOMPSUS, *Leconte.*

Schaum, in his volume of the "Insecten Deutschlands," and in the "Berliner Entom. Zeitschrift," 1860, p. 201, admits *Pericompsus* as a very natural group of *Tachys*, distinguished by its convex elongate-oval form of body, six elytral striæ, besides the marginal one, which is deep and removed from the margin, and by its light, clear colours. The group, in fact, embraces a number of New World species, easily recognizable by the characters here enumerated, but they are not so distinct from *Tachys* as Schaum appeared inclined to admit. In form it is difficult to distinguish them from such species as *Tachys pulchellus*, Laferté, and many others, which possess only one or two deeply impressed sutural striæ; and the character drawn from colouration is invalidated by the discovery of a species agreeing in structure very well with the rest, but having a dark metallic hue. The following species are new:

PERICOMPSUS GROSSEPUNCTATUS, n. sp.—*P. hirsuto* (Schaum) *affinis, paulo major, sparsissimè hirsutus, elytris seriebus punctorum sex grossis æqualibus; rufo-testaceus, elytris pone medium fascia indeterminata rufescenti-fusca; thorace angusto, postice valde angustato; elytris quarta parte apicali lævissima, antennis pedibusque flavo-testaceis.* *Long.* 1¼ *lin.*

Of the same slender form as *P. hirsutus* of Schaum, but differs in the elytra having only a very few long erect hairs (two of which on each elytron proceed from punctures on the 3rd interstice), instead of the rather dense clothing of that species; and in the inner rows of punctures not being smaller than the rest. These punctures do not lie in distinctly impressed striæ. The apex of the elytra is not blackish, nor is there a black streak connecting the fascia with the base as in *P. hirsutus.*

Rio Janeiro. In my own collection and that of Mr. Grut.

PERICOMPSUS PICTICORNIS, n. sp.—*P. hirsuto forma simillimus, differt corpore nudo, antennis pallidis art.* 4—6 *fusco-nigris; elongato-ovatus, rufo-testaceus, antennis pedibusque pallidis, illis art.* 4—6 *fusco-nigris; thorace postice valde angustato, elytris striis sex punctulatis leviter sed distincte impressis, pone medium fascia fusco-nigra prope suturam interrupta.*

Long. 1⅓ *lin.*

Distinguished by the pale antennæ having a blackish ring in the middle, including joints 4 to 6. The elytra are broadest in front, and attenuated towards the apex; there are a few long setæ only, arising from punctures, and the striæ are distinctly impressed and finely punctured. The black fascia is distinct only on the disc, becoming reddish near the suture, and the dusky-red colour is sometimes extended posteriorly along the suture towards the apex. The apex of the elytra is smooth and glossy.

Rio Janeiro, apparently common; taken by the late Rev. Hamlet Clark and Mr. Squires. I have examined about a dozen specimens in my own collection and that of Mr. Grut.

Pericompsus simplex, n. sp.—*P. hirsuto forma similis, differt corpore nudo, thorace antice multo minus rotundato-dilatato, minus convexo. Rufo-testaceus, antennis pedibusque pallidis, immaculatis; elytris elongato-ovatis, striis sex impressis grossius punctatis, interstitiis elevatis, flavo-testaceis, apud medium macula magna communi rufescenti prope latera nigrescenti et antice dilatata, apice lævibus. Long.* 1⅛ *lin.*

Similar to *P. picticornis* in form and colour, differing in the immaculate antennæ, and also in the striation of the elytra. In *P. picticornis* the striæ are sharp and fine, though slightly impressed and finely punctulated; in *P. simplex* they are distinctly broader and less impressed, and the punctures considerably larger, without, however, reaching the size they present in *P. grossepunctatus.* The thorax in both species is distinctly less dilated and convex anteriorly than in *P. hirsutus*, but approximates more nearly to this species than to the typical sp. *P. ephippiatus*, Say.

St. Catharine or Rio Grande, S. Brazil; from M. Meyer-Dür's collection.

Pericompsus immaculatus, n. sp.—*Minor, rufo-testaceus, nudus, antennis pedibusque pallidioribus; thorace quàm in P. epiphippiato multo breviori, valde transverso, sub-quadrato, postice modice angustato, basi sulco sub-marginali, angulis rectis; elytris striis quinque punctorum vix impressis,* 2—5 *antice posticeque abbreviatis. Long.* ¾ *lin.*

Distinguished by its small size, short and broad thorax, and the obliteration of the 5th (or outermost) stria.

Ega, Amazons; 3 examples.

Pericompsus incisus, n. sp.—*P. clitellari* (Erichs.) *proxime affinis, sed paulo minor, elytris haud nigro-plagiatis. Rufo-testaceus, elytrorum sutura, pectore abdomineque fusco-nigris; thorace transversim quadrato, postice paulo angustato, elytris striis sex acute incisis, vix punctulatis, striis* 1—2 *ad apicem extensis,* 3—4 *ante apicem conjunctis,* 5 *striolam recurvam attingenti, sutura et disco postice infuscatis, apice flavo-testaceis; prosterno rufo-testaceo, meso- necnon metasterno abdomineque fusco-nigris. Long.* 1 *lin.*

Differs from *P. clitellaris*, Erichs., by the absence of the clear black patch across the elytra, and by the red under-surface of the pro-thorax, It appears closely allied also to *P. concinnus*, Laferté, of which, however, the elytra are described as dark, with four pale spots.

Santarem, Amazons. In my own collection and that of Mr. Grut.

Pericompsus metallicus, n. sp.—*Nigro-æneus, pedibus flavo-testaceis, antennis fuscis, basi et palpis rufo-piceis; thorace transverso-quadrato, postice modice angustato; elytris striis sex grosse punctatis,* 2—6 *longe ante apicem terminatis. Long.* 1 *lin.*

The only metallic-coloured species of the genus at present described. In general form, distance of marginal stria from the margin, and number of striæ, it quite accords with the characters given by Schaum for the group, although quite differing in colour.

Rio Janeiro (Squires). In my own collection and that of Mr. Grut.

Obs.—Besides the species above recorded as found in the Amazons region, the following may be enumerated as occurring there. *P. hirsutus*, Schaum; *P. clitellaris*, Erichs.; and *P. jucundus*, Schaum. All are found on the moist margins of pools, especially when half dried up in the hot season, and readily take wing when disturbed. I have taken them flying also in the evening. This habit may help to explain the wide distribution of some of the species.

The list of species of *Pericompsus* in Gemminger and v. Harold's catalogue will have to be modified by the addition, besides the above-described, of *Bembidium circuliforme* (Solier) from Chili, and the withdrawal of *P. punctatellus* of Motschoulsky, which has seven striæ besides the marginal one.

Genus Xystosomus, *Schaum*.

This genus has not been admitted as distinct from *Tachys* by Gemminger and v. Harold, although it is much more sharply defined than *Pericompsus*, which they have adopted. The character on which it was chiefly founded is the simple apex of the anterior tibiæ, the apex in *Tachys* being externally dilated and obliquely truncate. The species are of very broad, ovate, and sometimes inflated, form. The elytra in the two species known to Schaum are perfectly smooth, in those described below, they are more or less distinctly punctate-striate and much less convex.

Xystosomus inflatus, Schaum, Berl. Ent. Zeits., 1860, p. 202, t. iii, f. 9.
„ *turgidus*, Schaum, *id.* 1863, p. 89, t. iii, f. 8.

Xystosomus ovatulus, n. sp.—*X. turgido major, multo minus convexus; elongato-ovatus, nigro-æneus, fronte bisulcata, thorace transverso, antice rotundato-angustato, angulis posticis rectis, supra convexiusculo, linea abbreviata dorsali profunda, basi utrinque fovea magna et extus carina elevata; elytris latis, regulariter ovalibus, supra lineatim subtilissime punctatis, stria marginali medio interrupta; antennis, palpis, pedibusque testaceo-rufis, femoribus tibiisque medio infuscatis.* *Long.* 1¾ *lin.*

The colour is brassy-greenish or blueish-black; the minute punctures of the elytra which represent the striæ form seven rows. The basal transverse sulcus of the thorax runs obliquely across the fovea and does not reach the middle.

Rio Janeiro, from the collection of the late Rev. Hamlet Clark.

Xystosomus strigosus, n. sp.—*X. ovatulo proxime affinis, differt elytris punctato-striatis, interstitiis convexis; nigro-æneus, leviter iridescens, capite bisulcato, thorace basi utrinque foveato et extus carinato; elytris latis, ovalibus, convexiusculis, striis septem punctatis, quarum* 1^{ma} *sola apicem attingit,* 7^a *vix impressa, notatis; antennis pedibusque testaceo-rufis, his fusco maculatis.*

Long. 1¾ *lin.*

Rio Janeiro. In my own collection and that of Mr. Grut.

Xystosomus Grutii, n. sp.—*X. strigoso similis, multo major. Viridi-æneus, sub-sericeus, iridescens; fronte sulcis duobus elongatis rectis, labro, palpis, antennis, pedibusque fulvo-testaceis, femoribus paulo infuscatis; thorace transverso-quadrato, antice rotundato-attenuato, angulis posticis productis, acutis, basi utrinque fovea magna et extus carinato, sulco abbreviata transversa per foveam ducto; elytris latis, ovalibus, paululum convexis, striis 7 dorsalibus duabusque approximatis marginalibus punctatis, apicem fere attingentibus; margine laterali explanato, interdum rufescenti; corpore subtus rufescenti.* *Long.* 2½ *lin.*

Probably the largest known species of the *Tachys* group of *Bembidiinæ*.

Rio Janeiro. In my own collection and that of Mr. Grut.

Kentish Town: *March*, 1871.

NOTES ON SOME CORSICAN INSECTS.

BY REV. T. A. MARSHALL, M.A., F.L.S.

(*Continued from page* 228).

Orthoptera. If the number of species of this order be inconsiderable, the multitude of individuals, their size, the strangeness of their forms, and the Babel of sounds which they keep up at all hours throughout the island, cannot fail to excite the curiosity. The marshes of the Campoloro near Ajaccio, and the lonely and pestiferous shores of the lagoon of Biguglia—once a Genoese seaport—are the head quarters of the grasshoppers. In June and July, these places are covered with a jungle of densely tangled grasses and flowers, rising higher than the breast. Every step disturbs hundreds of scared leaping creatures, which display rose-coloured, pale blue, and yellow wings, barred with black, and resemble flying flowers. Every gradation of stridulous note, from the harsh fiddle-scraping of *Decticus* and *Ephippigera* to the feebler pipes of *Phaneroptera* and *Conocephalus*, combines to swell the not unpleasing discord, and to impress the mind with the idea of incalculable numbers and inexhaustible variety. The most barren spots have also their inhabitants; the species of *Œdipoda* delight in basking on the hot sand of the shores, or on the rocks, and may be turned out from every clump of sea-spurge or *Cineraria*. Many species were still in the larval state at the time of my visit, and hence the following list can scarcely be complete, but I do not think the omissions are many. Beyond a very few notices in Fischer's "Orthoptera Europæa," no special attention seems to have been given to these insects in Corsica. I have followed the nomenclature and arrangement of that very complete work, because I know nothing better.

Labidura gigantea, Fab. Running about the quays of Ajaccio at night; common. *Forficula auricularia*, L. *F. pubescens*, Géné. On trees; Campoloro.

Blatta marginata, Schreb. Under stones, sea shore. *B. germanica*, L. In houses. *B. livida*, Fab. Taken commonly, by sweeping. *Periplaneta orientalis*, L. Several exotic species (introduced), said to be found in Sardinia, I did not meet with.

Mantis Spallanzania, Rossi. Rare. *M. religiosa*, L. Less common than in S. France.

Bacillus gallicus, Charp. One full grown in the Botanic Garden of Ajaccio. Young larvæ occasionally.

Gryllotalpa vulgaris, Latr. Banks of the R. Gravone. It resembles individuals from the banks of the Rhone at Tarascon. Smaller than the British insect, and the fore legs differently toothed. Another species? *Mogoplistes brunneus*, Serv. Under stones, rare; very delicate and difficult to preserve. *Œcanthus pellucens*, Scop. Common near Ajaccio. *Trigonidium cicindeloides*, Serv. Shining black, with red hind femora; a most beautiful little cricket, and peculiar to these islands. Campoloro and Biguglia. *Gryllus campestris*, L. Banks of the Gravone.

Ephippigera rugosicollis, Serv. Campoloro. Stridulates loudly; bites severely; ♂ fawn-coloured, ♀ green. The spp. are distinguished with difficulty. They are best preserved in spirit. *E. vitium*, Serv. Less common than the preceding. *Phaneroptera macropoda*, Burm. *P. falcata*, Scop. *Conocephalus mandibularis*, Charp. *Xiphidium fuscum*, Fab. *Locusta viridissima*, L. *Thyreonotus corsicus*, Serv. *Thamnotrizon Ramburi*, Serv. *Decticus albifrons*, Fab. The largest of the genus, very abundant and striking at the Campoloro. *D. verrucivorus*, L. *D. griseus*, Fab.

Troxalis nasuta, L. Campoloro and Biguglia. Perhaps the most singular of European locusts: I have some from the C. of Good Hope which do not differ. *Pyrgomorpha rosea*, Charp.; like the preceding, but with rose-coloured wings: rare. *Paracinema bisignata*, Charp. On aquatic plants: I found this also in the Landes, near Ychoux. *Stenobothrus pratorum* and *S. variabilis*, Fieb. *Stetheophyma variegata*, Sulz.; common. *Epacromia thalassina*, Fab. *Caloptenus plorans*, Charp. Rare. *C. italicus*, L.; everywhere, in countless myriads. *Porthetis marmorata?* Burm. Only in larval state; grass-green, with a yellow thoracic crest. *Acridium tartaricum*, L. Hills near Ajaccio. It is common at Marseille. *Pachytylus migratorius*, L. On desert shores, Biguglia. Abundant; flies more readily than most spp., and for a greater distance. It alights, however, after a short effort, and *appears* quite incapable of "warping on the eastern wind" in the manner stated by poets and historians. Has any *entomologist* ever witnessed a real migratory movement of these locusts? *P. cinerascens*, Fab. *P. nigrofasciatus*, Latr. *Œdipoda insubrica*, Scop. *Œ. cærulans*, L. *Œ. fasciata*, Siebold. The blue or red wings of this genus, generally crossed by a black band, render them very conspicuous. *Tettix subulata*, L. *T. bipunctata*, L. The name *Tettix* (= *Cicada* in Latin) is surely most inappropriate to these insects.

I have many still in bottles of alcohol, and not examined; but the above represent the most numerous and obvious species of Corsica.

[*To be continued.*]

FURTHER NOTES ON THE ŒCONOMY OF THE *CHRYSIDES* PARASITIC ON *ODYNERUS SPINIPES*.

BY T. ALGERNON CHAPMAN, M.D.

In Vol. vi of this Magazine (p. 153, *et seq.*), I recorded some observations on the *Chrysides* parasitic on *Odynerus spinipes*. I was then able to trace nearly the whole life-history of *C. bidentata*, but, with respect to *C. neglecta* and *ignita*, I was obliged to leave the oviposition and the earliest stages of the larva without any elucidation. I again attacked the subject in the summer of 1870; and, though I did not succeed in clearing up the matter, I desire to record the result of my observations so far as they went.

In 1869, I expressed my knowledge or want of knowledge of the early stages of *C. neglecta* by saying that "I have not seen the egg of the latter, and do not know how or where it is laid; but it supplants that of *O. spinipes*, as, a few days after the mother wasp has closed her cell, stored with green grubs, it contains a young larva of *C. neglecta*, busily eating that store, and no trace remains of the egg or larva of *Odynerus*."

I therefore especially directed my attention last summer to cells in process of construction or recently closed cells, and, having at hand one or two localities where *O. spinipes* was abundant, I examined a considerable number of these. I used to dig in the bank where they were constructing their cells, and, on opening one, turn its contents carefully out, and examine them and the wall of the cell. It not unfrequently happens, that, in opening a cell, the portion of wall removed and usually lost is that to which the egg of *spinipes* is affixed; and this source of error in the following observations must be remembered when it is stated that no trace of *spinipes* was found.

There are two matters in relation to the nidification of *O. spinipes* that may as well be noted, as they enable us to understand the remarkably rapid development of the larva of *O. spinipes*, and especially of *C. neglecta*, and also why the green grubs are preserved so fresh and plump until they are eaten; whereas, when removed from the cell, and kept, say in a pill-box, they speedily die and desiccate.

One of these points is, that, in removing the earth to form her cell, *O. spinipes* wets it freely, so as to soften it and admit of its being scraped into pellets; and, as a result, much of the moisture so applied soaks into the earth, so that each cell is surrounded by a zone of damp earth of a quarter of an inch in thickness. The other point is, that the place of nidification is always a bank freely exposed to the sun, often at such an angle that for part of the day it has a vertical sun, and in such a recess of the bank that the surrounding parts reflect and concentrate the heat upon it. The result is, that the cells must have a very high temperature, with a moist atmosphere that probably intensifies its effects.

I found altogether a considerable number of larvæ of *neglecta* newly hatched, but in only one instance did I meet with an egg; whether this was an egg of *C. neglecta* or of *C. ignita*, I cannot positively say, as the larva when full-fed was not placed in circumstances to make it spin a characteristic cocoon (which it can only do in a cell of similar size and shape to that of the wasp), and it afterwards died. It is, however, extremely probable that it was *C. neglecta*, as that species is so much more abundant than *C. ignita* in the cells of *O. spinipes*. I do not, however, consider the point as of extreme importance, as it seems almost certain that the habits of *C. ignita* and of *C. neglecta*, as parasites of *O. spinipes*, are the same.

This solitary egg was found on June 13th. I will give the observations made on that day, as they derive a special importance from the fact that the two previous days had been so dull that *spinipes* was not at work, nor *neglecta* moving about. I expected in consequence to find cells constructed on days previous to these two dull days containing larvæ of *neglecta* of some size, and cells constructed and stored only that morning; and that in those of the latter that contained *neglecta*, I should find it as an egg. Nor was I disappointed: there was the gap in the ages of the larvæ in the cells of that day and those of previous work; and in one solitary instance, as noted above, I found the egg of *neglecta*. I could find with this egg no trace of the egg of *O. spinipes*, and this makes it just possible that this may have been an egg of *C. ignita*, and that the habit of the latter differs from that of *C. neglecta* in the parent *C. ignita* destroying or removing the egg of *O. spinipes* at the time that she lays her own egg; though my observation of the oviposition of *C. ignita* in 1869 would seem to contradict this, and the inference is, that the egg of *O. spinipes* was lost in opening the cell, as already noted.

It is certainly not the habit of *C. neglecta* to remove or destroy the egg of *O. spinipes*, but I believe that she injures it, probably with her ovipositor at the time of laying her own egg. *C. neglecta* remains in the egg-state but a very brief period; on June 13th, as noted above, I found in each of two cells of that day's construction a newly-hatched larva of *C. neglecta*, which could not have been lain as an egg more than an hour or two, if so long. The following notes of the state of the cells containing newly-hatched *C. neglecta* larvæ are my data for assuming that the egg of *O. spinipes* is injured by the oviposition of *C. neglecta*, and that it is not attacked by the larva of *C. neglecta*. In one of those found on June 13th, the *C. neglecta* was separated from the egg of *spinipes* by a green grub. The contents of its intestine were dark coloured, being derived from a green grub, not yellowish as they would be if from the egg of *spinipes;* but the egg of *spinipes* was wrinkled and shrunk to about half its proper size, the amount of growth of the *neglecta* being, however, not nearly so much as the loss sustained by the egg of *spinipes*. In the other instance met with on June 13th, the egg of *spinipes* was not detected. On June 15th, I found a cell containing a larva of *C. neglecta* already sufficiently grown to be in process of casting its first skin.

In this cell was the empty egg-shell of *spinipes*, and the young larva of *spinipes* dead and shrivelled to about half the size of its egg, injured, and glued in drying to a green grub, but apparently not eaten or sucked out at all; the intestinal contents of the *C. neglecta* were greyish-green. In this instance, the cell must have remained open for a day or two until the *spinipes* larva was hatched, not an unfrequent circumstance, probably because the weather prevented the mother wasp from completing her tale of green grubs, and the cell must have been visited by the *C. neglecta* to lay her egg after the hatching of the *O. spinipes*, after which the cell was completed and closed by the wasp. On June 9th, I found with the larva of *C. neglecta* an egg-shell of *spinipes*, and a dried and empty skin of *spinipes* larva which suggested to me at the time, that the larva of *spinipes* had been sucked out by that of *neglecta*,—a conclusion which further observation has led me to reject. On the same day, I found an injured egg of *spinipes* with a young larva of *neglecta*.

I find, therefore, that the young larva of *neglecta* occurs beside the injured egg of *O. spinipes;* but that the amount of growth of the larva of *neglecta* is not sufficient to explain the loss of bulk of the *spinipes* egg or larva; that its intestinal contents are derived from the green grub and not from *spinipes;* and that the remains of *spinipes*, when found, although injured and more or less dried and shrivelled, appear not to have had the fluid sucked out; and I conclude that the injury to the egg or larva of *O. spinipes* is inflicted by the ovipositor of *C. neglecta* at the time of oviposition.

The egg of *C. neglecta* is almost exactly 1 millim. in length and rather less than .5 millim. in diameter; it is ovoid in shape, one end tapering rather more than the other, and, though the cross section is circular, one side is a little more curved than the other; this tendency to the curved form so marked in *spinipes*' egg is so slight as only to be detected on close observation; the egg is of a pearly whiteness. Though we have sufficient proof that the eggs of *C. neglecta* and *C. ignita* hatch under their usual conditions within a few hours of being laid, this egg enclosed in a pill-box and kept damp, though taken on the 13th, did not hatch until the morning of the 16th; on the 19th, the larva cast its first skin; on the 22nd, it cast its third skin (the date of the second not being observed, though the cast skin was found); on the 24th, it had cast a fourth skin. It appeared full-fed on the 28th; but did not begin to spin until July 4th. I have already said that I did not place it in a proper cell, and the cocoon was not characteristic of either *neglecta* or *ignita*.—a larva left in this way in a pill-box merely spinning a flattish web or platform of silk, and the want of a proper cocoon no doubt leading to its death. It was fed on green grubs.

Hereford: *January*, 1871.

Further list of Coleoptera from the neighbourhood of Maidstone.—*Baris abrotani (picicornis)*, *B. lepidii; Amalus scortillum*, *Sitones crinitus*,* *puncticollis** and *humeralis*, and *Phytonomus murinus* in sand-pits, the latter in some numbers, and unaccompanied by *variabilis; Rhinoncus subfasciatus*, *Ceuthorhynchideus nigrinus*, *Ceuthorhynchus litura* on thistles, *C. asperifoliarum* on *Echium*, *Ceuth. campestris*,* *C. picitarsis* (1), *Cœliodes fuliginosus*, *Orobitis cyaneus*, *Gymnetron beccabungæ* (var. *veronicæ)** in plenty, *Cionus blattariæ*, *C. pulchellus*, *Tychius meliloti*,* *Sibynia primitus*, one specimen in dandelion flower, *Orchestes pratensis*, *Apion flavimanum*, *pallipes*,* *difforme*, *varipes*,* *minimum*, *meliloti*, *ebeninum*, *Molytes coronatus*, *Plinthus*, *Polydrosus flavipes* (seen in some numbers, but only a set secured), *Sciaphilus*, *Bruchus loti*, *seminarius* and *cisti; Rhynchites conicus* and *uncinatus*. *Pachyta collaris** on flowers near hop gardens, in the poles of which it doubtless fed; *Callidium alni*,* ditto. *Donacia sagittariæ*,* *lemnæ*, *impressa* and *affinis; Lema puncticollis*, *Galleruca calmariensis** and *Graptodera consobrina** on *Lythrum*, *G. helianthemi*,* *Crepidodera Chloris** and *Modeerii*, *Mantura rustica*, *obtusata* and *Matthewsii*, *Aphthona lutescens* in the greatest abundance, *A. herbigrada*,* *Phyllotreta nodicornis** on *Reseda*, *P. ochripes* and *tetrastigma; Thyamis anchusæ* on *Echium*, conspicuous in the net by contrast with *femoralis*, of which there were thousands, at times completely covering the surface; *Th. atricilla*, *pusilla* and *gracilis; Psylliodes dulcamaræ*, *chalcomera* and *attenuata** (on hops). *Cassida equestris; Scymnus minimus; Phlœophilus Edwardsii*, one from moss on a stump. The species marked* were common.—H. S. GORHAM, Bearsted, *January 6th*, 1871.

Note on galls from the Drachenfels.—Having myself experienced the benefits derived from holidays recurring only at long intervals, I am naturally anxious to secure even the smallest entomological results obtained by others under similar circumstances. I therefore wish to mention that although I unfortunately missed seeing Dr. Jordan at Mr. Stainton's house on his return from the Rhine (vide ante, p. 174), that the tin full of galls collected by the former gentleman at the Drachenfels has been carefully overhauled by me. It contained—

1; specimens of the woolly polythalamous oak-galls of *Cynips ramuli*, Linn.

2; splendidly developed, large, bluish, monothalamous, pyriform galls on the leaves of beech, produced by *Cecidomyia fagi*, Hartig.

3; pea-shaped monothalamous galls on the leaf-stalks of *Populus tremula*, caused by *Cecidomyia tremulæ*, Winnertz, and answering to his variety, No. 2 (Linn. Ent., Vol. viii, p. 273).

4; incrassate stem-gall of *Cecidomyia cauliginella*, Schmidt, on *Silene nutans*.

Entomological tourists abroad would do good service in a neglected field, if, like Dr. Jordan, they would simply put such galls as come under their notice into a tin or box, noting the date and locality. There is not much trouble in doing this, and the result may be often valuable in ascertaining the geographical range of a species; as it by no means follows that the distribution of an insect tallies everywhere with that of its food-plant.—ALBERT MÜLLER, South Norwood, S.E., *December 29th*, 1870.

Note on the flight of Cynips.—In a posthumous paper by the late Mr. Walsh upon the *Eurytomides* (The American Entom. and Botanist, Vol. 2, p. 333), that careful observer, in the course of some remarks upon the wonderful restriction of the oak-apples of *Cynips Q. spongifica* to a very limited space, in spite of the surrounding circumstances being apparently equally favourable to their development, states his profound conviction that the gall-flies making those excrescences, although they have full-sized wings, scarcely ever use them. He further observes, that, out of thousands bred by him, he never knew an individual, whether of the vernal or autumnal type, to take wing spontaneously; and that only on one or two occasions, when he had placed the perfect insects on oaks to experiment as to the laws of their reproduction, had he seen one of them take wing, and then only for a yard or two. This reminds me of the only occasion upon which I have myself seen *Cynips* on the wing, upwards of fifteen years ago, on a hot morning about the end of May, when a full-winged example of one of our largest species settled on my coat. That individual must, however, have flown for a considerable distance, as I was walking in the middle of the highest part of the road on Wimbledon Common, facing Coombe Wood, and the insect flew *down* on me,—there being no oak-trees within many hundred yards. I do not know whether other observers have found the *Cynipidæ* so sluggish as Mr. Walsh's note implies,—or whether his observations are restricted to the single American species. I have myself seen no *Cynips* flying but that above mentioned.—E. C. Rye, 10, Lower Park Fields, Putney.

Capture of a Tortrix new to Britain.—On the 3rd of July, 1870, I took several specimens of a *Tortrix* which I found in abundance on Craig Maige, a lofty mountain near the foot of Loch Laggan, in the county of Inverness. They flew up at every step on a ridge about 3000 feet above the sea. Last autumn I sent five specimens to Mr. Henry Doubleday for his examination, and he pronounced them to be varieties of *Sericoris irriguana* of Herrich-Schäffer. It is very similar to *Daleana*, but smaller, and the anterior wings are more pointed—all the specimens I took are males. Several other able entomologists have seen my specimens, and are of opinion that the species is distinct from *Daleana*, though Mr. Doubleday thought it possible that the latter was only a variety of *irriguana*.—N. Cooke, Liscard, *2nd March*, 1871.

Capture of Hadena assimilis.—On the 2nd of July, 1870, I took two fine males at sugar, at the foot of the above-named mountain, and on the 3rd I saw a male and female at sugar, but unfortunately only secured the female; the male flew at my lamp and escaped. I do not adopt the name of *Crymodes exulis* for this species, because I believe the two are quite distinct species; I have compared a continental specimen of *exulis* with my Scotch specimens of *assimilis*, from which it appeared to be quite distinct, and the larva figured as that of *exulis*, of which I possess a copy, is more like the larva of an *Hepialus* than that of any other genus with which I am acquainted, and it seems to me very improbable that a moth like *assimilis* could come from such a larva.—Id.

[Dr. Staudinger set out more than 400 specimens of *Crymodes exulis*, of which fully 200 were bred—hardly two of these were precisely similar, varying from our

Scotch form known as *assimilis*, to specimens of very different colouring and marking. In short, the insect is far more variable than *Apamea oculea*. Were we to learn to breed our Scotch *Hadena assimilis*, and, after breeding some 50 or so, to discover that it did not vary at all, but was always the same, that would simply prove that *Crymodes exulis* was more variable in Iceland than in Scotland, but would not in any way establish as a fact that *Hadena assimilis* and *Crymodes exulis* are two distinct species.—Eds.]

Captures, &c., of Lepidoptera near York, in 1870.—The spring of 1870 was bad for entomological purposes, nothing but cold east winds, so we could pay very little attention to the sallows until the end of April, and then they were nearly over. Two *T. opima* and a few *L. lobulata* were the only species worth mentioning. May, however, brought better prospects, insects appearing frequently in my breeding cage. During the month I bred *C. curtula*, *C. reclusa*, *N. dromedarius*, *D. furcula*, *D. falcula*, *C. duplaris*, *E. pimpinellata*, *lariciata*, *fraxinata*, *subnotata*, *minutata*, *castigata*, *assimilata*, *venosata*, &c. Upon tree boles I took *E. indigata*. *E. lariciata* was not rare amongst larch. Towards the latter end of the month, insects began to appear at sugar, and in June, they were abundant, I obtained fine series of *T. derasa* and *batis*, *C. duplaris*, *A. leporina*, *L. pudorina* and *comma*, *X. sublustris* and *hepatica*, *N. saponariæ*, *A. unanimis*, *A. herbida*, *H. suasa*, *D. cucubali*, &c. *P. lignata* (the first brood) was rather common in our bog, and *C. sparsata* began to appear. I also took a fine *S. vetulata*, which, with one in 1869, I believe to be the first occurrence of the insect here: also *E. pulchellata*, *valerianata*, and *denotata*, *A. luteata*, *M. albicillata*, *H. impluviata*, appeared now and then. In the beginning of the month, I bred a fine series of *D. carpophaga* and a few *capsincola*. In the early part of July, Mr. Carrington and I took *E. pulchellata* pretty freely; the larva of this insect varies much, and is very subject to parasites. During July we obtained the following species at sugar: *A. fibrosa*, *T. interjecta* and *janthina*, *O. suspecta* (a long series), *A. aquilina*, *H. costæstrigalis*, *C. Haworthii*, *M. literosa*, &c. On the 18th of this month, I met Mr. Carrington and Mr. Taylor, of Leeds, in Cawood Wood, for the purpose of searching for *T. roboraria*, we having heard that the species had been taken there. We found no *roboraria*, but, instead thereof, three brethren of the net, Mr. Birchall and his son, and Mr. Baxendale, of Halifax, with whom we spent a very pleasant day. Considering the fine weather, the paucity of insects was remarkable: however, we made an appointment to have a day at York in the following week, with the Messrs. Birchall, to look for *E. vespertaria*. Accordingly we started for our hunting ground early on the evening of the 16th, and, after sugaring our trees, took a few *A. inornata*, &c. Next morning we rose early, and proceeded to run the blockade, for, be it known, that the proprietor of the estate had offered 5s. reward for the apprehension of any entomologist found thereon! Soon after 7 a.m., *vespertaria* made its appearance, and by breakfast time we each had a fair series; after breakfast a few were taken, but the flight was over: females were very scarce, only one was taken. After an early dinner, we tried searching and beating in the wood, and took several fair things, *L. dictæoides* falling to Mr. Carrington's lot. Towards evening we began our return to old Ebor, and on the way found a few larvæ of *C. curtula* and *reclusa*, in spun-together aspen leaves. Early in the month I found a few specimens of *S. basistrigalis*, but did not know of my good fortune until too late, and it also produced, by mothing at dusk in a bog, *A. immutata* and *imitaria*, *C. selasellus*, *S. pallida*, *G. papilionaria*, *E. assimilata* and *subnotata*. I think the latter must be the most abundant "pug" we have; a patch of ground of about six yards square absolutely swarmed with it. *E. tenuiata* was bred from larvæ taken in the spring, and we began to search for the larvæ of *C. sparsata;* I have several times taken both larva and imago of this species on the same night; the larva is not difficult to find when you get accustomed to its habits; it appears to feed solitarily on the under-sides of the leaves, making holes not unlike those of *E. assimilata* in hop, and is a cannibal in confinement. Near the end of the month, we took the larva of *E. valerianata* very freely, but obtained only two of *fraxinata*, though about thirty of *lariciata*. In August I took a very fine series of *C. xerampelina* and *A. ravida*. At heather bloom, *A. agathina*, *N. neglecta* and *glareosa* occurred, and *E. apiciaria* was not uncommon in the bog. In the early part of the month the second brood of *P. lignata* began to appear; it is very much smaller and generally more common than the first brood. I also took a specimen of *E. lutulenta*. One night when I and Mr. Carrington were sugaring with little success, we found that some recently cut down birch-trees had much greater attracting powers; some species, such as *X. silago* and *ferruginea* were swarming at them, though rare at the sugar; a few *N. fulva*, very variable, were found the same night. In Cawood Wood we obtained one larva of *N. dodonea*. In the latter part of the month we obtained a few of a *Peronea* in the bog, of the *comparana* group, but I think it cannot be that species. Autumnal insects were very abundant at sugar, and in the early part of October I took two examples of *A. saucia*; also a very fine series of *T. firmaria*, which makes its appearance very late with us. On the 6th October I took a very fine specimen of *T. batis* !—W. Prest, York, *January*, 1871.

Difficulty of rearing Opadia funebrana and Homœosoma nebulella.—One day last autumn I noticed, at a fruit shop, just such a lot of plums as I had long been looking out for. Every plum contained either a larva or the traces of one, so I purchased a quart or two, carefully selecting those that were still occupied, and put them into various vessels at home, placing bits of bark on the top of each lot. Very soon the bright pink larvæ, being full fed, began to leave the fruit and crawl restlessly about, but finding the pieces of bark to their taste, they soon spun up upon them, gnawing small hollows and working the particles of bark into their cocoons, so as to render them as little conspicuous as possible, and there appeared to be good promise of a fine series of *Opadia funebrana*.

One cocoon being spun between two chips got broken in removing them, so that the larva became visible. It made no attempt to repair the damage, but remained perfectly still, in the larva state, and alive, till March or later, when it died, as did the occupants of all the cocoons except four, from which the moths emerged early in June. On examination I did not find a single dead pupa, all had sulked and died in the larva state, but the reason is beyond my comprehension, unless it is that they required to be kept out of doors exposed to the weather, and that indoors they became too dry.

In the similar case of a host of larvæ of *Homœosoma nebulella* in seed-heads of

Carduus nutans, all died in their cocoons in the larva state, except one precocious individual which thought proper to emerge in the autumn, a few weeks after the seed-heads were collected.—CHAS. G. BARRETT, Norwich, 12*th October*, 1870.

Notes on Butterfly-collecting in Switzerland.—Having devoted a considerable amount of time during the past year to collecting in Switzerland, I send you a short account of my captures among the butterflies, thinking it may interest some of your readers. Unfortunately, I cannot say much about the moths, as I took comparatively few species, principally owing to weak health, which prevented me from doing any night-work. Butterfly hunting in Switzerland is very different from what it is in England: the number of species to be taken is much greater, and the individuals of some species swarm to a degree which can hardly be imagined by those who have not seen it. As an instance of this, I may mention that one day when high up among the mountains, I came upon a damp place by the side of a small stream: this was absolutely covered by butterflies, so as almost to conceal the ground: on disturbing them, and striking with my net as they rose, I obtained at one sweep a living mass, which must have consisted of at least 200 individuals. They were all, or nearly all, "blues" and "skippers," chiefly *L. Argus*, *semiargus (Acis)*, and *Alsus*, and *Pyrgus Alveus*. Altogether, in the course of the year, I took more than 112 species of butterflies. I collected principally in three places:—Bex, in the Rhone Valley; Sepey, in the Ormond Valley; and Zermatt, including, under this name also, the Riffelberg and Gornergrat, which rise above it. This last was by far the most interesting locality, but I was there for barely a fortnight, and as we had heavy rain nearly every day, I was not so successful as I might otherwise have been. I also made my visit somewhat too late (the last week in July), when many of the species were over.

I now proceed to give a list of the butterflies observed. The specific names used are those employed in Mr. Kirby's "Manual of European Butterflies." When I have given a date, it marks the earliest appearance of the insect, according to my experience.

Papilio Podalirius (April 17th) and *Machaon* (May 21st). *Parnassius Apollo* (May 19th) and *Delius*. The former common everywhere in the mountains; the latter I only saw on the Riffelberg; it seems to frequent damper situations than *Apollo*.

Aporia cratægi (May 19th). *Pieris brassicæ*, *rapæ*, and *napi*. All abundant. I did not see *brassicæ* till June 3rd. *Callidice* (June 17th). This mountain species flies very strongly and wildly, and is difficult to catch. *Daplidice* (April 2nd). Bex. Rather common for about a fortnight.

Anthocharis Belia (*var. Ausonia)*. April 26th. Near Bex, but very local; *cardamines* (April 7th). *Leucophasia sinapis* (April 7th). *Colias Phicomene* (June 21st). Very common in the mountains. *Hyale* (April 15th). *Edusa* (April 18th).

Gonepteryx rhamni. In all, 17 species of *Papilionidæ*.

Melitæa Cynthia. High mountains above Bex, and on the Riffelberg. *Artemis*, *Cinxia*, *Didyma*, and *Athalia*. All early in May, and common. *Athalia* has the highest vertical range but becomes very small at great heights; one, which I took on the Riffelberg, is less than an inch in alar expanse. *Dictynna* (May 25th). Sepey. *Argynnis Amathusia*. Common beyond Les Plans, near Bex. *Euphrosyne*

(April 23rd). *Pales.* Common on the mountains; a curious dark variety occurred on the Riffelberg. *Dia* (April 13th). *Daphne?* Sepey. *Lathonia* (April 7th). *Aglaia, Niobe, Paphia.* All common. A single specimen of *Paphia* ♀ var. *Valesina* in the Zermatt Valley.

Grapta C-album. *Vanessa polychloros, urticæ, Io, Antiopa,* All more or less common. *Pyrameis cardui,* scarce. *Atalanta.* *Limenitis Sibylla.* Common at Bex and Sepey. *Camilla.* As common as *Sibylla* at Bex, but apparently confined to the hot Rhone Valley, as I never saw it at Sepey. *Nymphalis populi.* Sepey. Apparently rare, as I only saw one specimen. *Apatura Iris.* Sepey. Also very rare.

Melanagria Galathea (May 28th). A perfect pest in all the lowlands. *Lasiommata Mæra, Hiera, Megæra, Ægeria.* I am not quite sure of *Hiera,* but took two insects apparently referable to this species at Sepey. *Dejanira,* Bex. *Hipparchia Proserpina, Hermione, Semele, Cordula.* All common. *Phædra.* Bex, in August. *Lycaon.* Zermatt, common. *Janira, Hyperanthus.* *Cœnonympha Iphis.* Bex. *Philea.* Abundant on mountains. *Pamphilus.* *Chionobas Aello.* I only took one worn specimen of this mountain species. Sepey. *Erebia Melampus, Œme, Alecto, Manto, Tyndarus, Gorge? Goante, Pronoë, Medea, Ligea, Euryale.* Many of these were widely distributed on the mountains, but *Manto* I only took on one mountain above Bex, and *Alecto* seemed confined to the summit of the Gornergrat, some 10,000 feet above the sea. *Medea* and *Ligea* were taken at lower elevations at Bex and Sepey. 55 species of *Nymphalidæ.*

Nemeobius Lucina (April 22rd). Common. Bex and Sepey. One species of *Erycinidæ.*

Thecla betulæ. A few worn specimens near Montreux in the autumn of 1869. *W-album.* Bex. *Pruni,* very common in the neigbourhood of Bex. *Quercûs.* *Rubi* (April 12th).

Polyommatus virgaureæ. Zermatt. *Eurydice* (May 25th). Sepey. Common. I took one strange variety of the ♀ of this species, in which the ordinary spots of the under-side were collected into black marginal streaks. The right and left wings differed, and their upper-surface also differed somewhat from the type. The insect was somewhat crippled, which may account for the variation. *Dorilis* (May 5th).

Lycæna Tiresias. Bex and Brunnen. *Ægon.* *Argus.* *Hylas.* One specimen at Bex on May 4th. *Pheretes.* Zermatt, rare; I only took two, both females. *Orbitulus* and *Eros,* common on the mountains. *Medon, Icarus, Adonis, Corydon, Dorylas, Damon.* All common. *Donzelii,* Zermatt. Why should this species be confined to larch woods? *Argiolus, Alsus, Semiargus.* All common. *Cyllarus* (April 20th). Common at Bex. *Alcon.* One or two on the mountains. *Arion,* common. 28 species of *Lycœnidæ.*

Pyrgus malvarum. Bex. *Lavateræ.* Rather scarce, but widely distributed. *Alveus.* Common on the mountains. *Cacaliæ.* Rare. Zermatt. *Malvæ.* Very common through the summer. *Sao.* Zermatt.

Nisoniades Tages. *Pamphila lineola, Sylvanus* and *comma.* All common. *Cyclopides Paniscus* (May 21st). Common at Sepey. 11 species of *Hesperidæ.*

This seems a very fair number of species for so confined a district as that in which I worked: yet several species are absent from the list, which I should have expected to be common. Among these are *A. Selene* and *Adippe,* and *H. Tithonus.*

P. Phlœas I never saw alive, but was shewn a single specimen which had been taken in 1869. In conclusion, I may mention that I have duplicates, in good condition, of many of the species mentioned in the foregoing list, and shall be happy to exchange them for good specimens of other European species.—R. P. Murray, Mt. Murray, Isle of Man, *December 9th*, 1870.

Description of the larva of Miana arcuosa.—Thanks to the persistent efforts of Mr. James Batty, of Sheffield, I am able to offer a description of the larva of this species, as I believe for the first time.

On the 23rd of May, 1870, Mr. Batty found several larvæ and subsequently more, and also some pupæ by searching the crown of the roots of *Aira cæspitosa;* and he kindly sent me three of the larvæ on the 24th, which were then apparently full grown. To the two most advanced I gave some cut lengths of the lower part of the grass stems placed on a bedding of portions of the roots carefully picked to pieces, so as to ensure the absence of any other creature. The third larva after being figured and described, was placed in a pot with a small growing plant of the grass, which had also been carefully examined; it soon crept into the middle of the small plant, and I did not see it again, for I was unwilling to interfere with it.

The other two I looked at each time of feeding, up to the 2nd of June, when I found that one of them had partly spun together two pieces of the dried grass sheath; after that, being satisfied with this hopeful event, I did not disturb them further.

The first moth, a male, appeared in the cylinder that confined the growing plant, on June 30th; only one of the other two emerged, on July 2nd, a female: and about the same time Mr. Batty reported his having bred a series of both sexes.

The full-grown larva varies from five-eighths to three-quarters of an inch in length, is moderately slender, the last three segments tapering a little towards the hinder extremity, the back just a very little arched in front, the head smaller than the second segment, and flattened above towards the mouth; with these exceptions the figure is tolerably cylindrical, and its texture of considerable toughness. The ground is either a delicate cream, or pale flesh colour, with three transverse bars of pale brownish or deeper flesh colour on the back of each segment; these bars are all interrupted down the middle of the back by a distinct dorsal stripe of flesh colour still paler than the ground; the sub-dorsal stripe is less pale and less distinct; the spiracles are black and the region round them rather puffed; the ventral surface and pro-legs of the pale ground colour: the head is glossy brown, darkest round the mouth; a paler brown equally glossy plate is on the second segment, divided by a slender line of flesh colour; and a still paler brown shining plate is on the anal tip; the anterior legs are of the same pale brown colour.

I must not omit to mention that the Rev. E. Hallett Todd most kindly sent me two larvæ identical with the above, which he found in the roots of *Aira cæspitosa* in May, 1867: but they died in the pupa state, and remained as an enigma unsolved till this season.—Wm. Buckler, Emsworth, *November 7th*, 1870.

Comparative descriptions of the larvæ of Chesias spartiata and obliquaria.—It is a great pleasure to me to acknowledge my numerous obligations to Mr. W. H.

Harwood, of Colchester, and in this instance especially for all the trouble he has so kindly and repeatedly taken to furnish me with larvæ of our two British species of *Chesias.* For three seasons in succession I have thus taxed his patience, because I did not like to speak before I had made quite sure of the distinctive characters of these larvæ, and had satisfied myself still further by breeding the moths.

From eggs of *spartiata* forwarded by me to Mr. Hellins in October, 1868, the larvæ were hatched in February, 1869, earlier probably than is natural to the species, on account of their not being exposed to the cold, but the imago was not bred till October 9th; the time for finding the larvæ at large appears to be the month of May or thereabouts, and so far as my experience goes, September and October are the months for the moth; there is no sign of an earlier brood.

Of the egg of *obliquaria* I cannot speak; but the larvæ were sent me by the Rev. E. N. Bloomfield and Mr. Harwood, on July 20th, and again on September 6th and 26th, 1869; the perfect insects appearing this year (1870), the earlier batch between the 17th and 21st of May, and the later between the 16th and 20th of June; with this species also, therefore it appears there is one brood in the year, variable in the period of its flight.

I now offer descriptions of the full-grown larvæ, giving first the points in which they are both alike, and afterwards those in which they differ.

Both species then have the same food-plant, *Spartium scoparium,* and are alike in form; when full-grown, they are about an inch or a trifle more in length, uniformly cylindrical and slender: the last two segments tapering a little to the end of the anal flap; when they are stretched out at full length in repose, the head is bent down and the legs drawn up towards it, an attitude which gives rather a swollen look to the anterior extremity; the ventral and anal pro-legs are moderately well developed.

Spartiata is generally of a deep full green on the back, sometimes rather yellower-green on the sides; it has a dorsal line of much darker green between two lines of paler green than the ground colour; the sub-dorsal *broad stripe* is as dark as the dorsal line, and is *edged above and below with a fine thread of much paler green;* the spiracular region is puffed, the spiracles red, faintly outlined with black; the inflated sub-spiracular stripe is either primrose-yellow or white, melting a little above into the green; the anal flap is often rather a deeper green than the ground colour; the ordinary minute tubercular dots are in the usual position, each bearing a short brown bristle: the ventral surface is green with three pale stripes of whitish-green, the central being the widest. A yellow variety of this larvæ often occurs, exhibiting more or less distinctly the details above described; it is generally found feeding on the broom blossoms, to which it assimilates well.

Obliquaria is either of a full-green or inclining to bluish-green in the ground colour, the dorsal line of much darker green is edged with a line of very bluish-green much paler than the ground colour; the sub-dorsal *line* is thin, *yellow* or *greenish-white,* very finely edged above sometimes, and *always below* with a line of dark green,—this *pale* sub-dorsal line is, by aid of a lens, seen to be composed of numerous little transverse bars or streaks with the slightest interval of the ground colour between them; the rather broad inflated sub-spiracular stripe is pure white or yellowish-white; between the sub-dorsal line and the sub-spiracular stripe there is a very thin and fine tortuous line of very bluish-green, paler than the ground colour, its course defines the boundary of the puffed region above the spiracles, and these last are pale yellow faintly outlined with black; the head generally bluish-green; the tubercular dots are black, each bearing a short bristle, but they are very minute; the segmental folds yellowish; two very short anal points sometimes occur, but generally there is only a slight swelling on each side below the flap, the point of which shuts down between them.

The ventral surface is of the green ground colour, with a central paler ochreous-greenish stripe between two lines that are composed of little transverse streaks, similar to those of the sub-dorsal line before described.—**Wm. Buckler**, Emsworth, *November 17th*, 1870.

Review.

"The Honey Bee," its Natural History, Physiology, and Management, by Edward Bevan, M.D., revised, enlarged, and illustrated by William Augustus Munn, F.R.H.S., &c. Van Voorst, 1870.—This edition of Dr. Bevan's work on the honey-bee is revised, enlarged, and mutilated; it is also disfigured by a number of coloured caricatures of the bees and their combs; we refer in proof of the latter assertion to plate G. The three sexes of the bee are there represented, as we are informed on the page descriptive of the figures; at C a grotesque representation of the drone is seen from above; at F, the under-side is shown, and, strange to say, the anterior pair of wings are attached beneath the thorax, close to the coxæ of the anterior legs,—being also much smaller than the posterior pair! Of the plates intended to illustrate the anatomy of the bee we need only refer to plate L. Fig. A represents an antenna, but it is not like that of any honey-bee with which we are acquainted; three cup-shaped joints are represented at the apex of the scape, which certainly exist in no sex of any honey-bee. The figures have both letters and numbers quite at variance with the description of the plates; the anatomical plates being, in fact, full of confusion and error.

We regret that we are unable to speak more favourably of the literary portion of the work incorporated by Major Munn, and we must protest against his having in no way distinguished his own interpolations from the valuable work of Dr. Bevan, and against the frequent and quite inexcusable alterations of the original text. Dr. Bevan's work gave the world an accumulation of valuable information up to the time of its publication, and was a valuable text-book to the apiarian; but the same remarks can by no means be correctly applied to the present edition.

The great aim of the work appears to be to laud the superiority of Major Munn's bar-and-frame-hive over all other inventions; to us, it appears to be a clumsy contrivance, adopted by no modern bee-master who aims at a knowledge of the mysteries of the hive. The simple, modern, frame-hive with moveable bars is so admirably adapted both for observation and economy, that we have no doubt Major Munn's invention will continue to enjoy the obscurity in which it has hitherto remained.

Major Munn has ventured to attack Dr. Siebold's great discovery of Parthenogenesis; but he adds, at page 336, "this is not the occasion to combat the "errors beyond stating one or two facts, which I believe to be fatal to the whole "conclusion." The first fact proves, on examination, to be a mere supposition:

Dr. Siebold states that all the drones had been killed in August, in a hive he had under examination; Major Munn thinks there might have been a few still "skulking" about. We are to believe, that, when so important an investigation was being conducted by Dr. Siebold, these *supposed skulkers* were overlooked. We are told that no description is given by Dr. Siebold of the "*spermatozoa;*" but, since they are repeatedly described by him as "active," or "motional filaments," that is, thread-like, we cannot accept the assertion. Major Munn claims to having discovered, by the aid of the microscope, that it is the lower end of the egg, that which is attached to the cell, which holds the "*spermatozoa.*" Dr. Siebold distinctly states, repeatedly, that in order to observe the "*spermatozoa,*" he ruptured the "*lower pole,*" so that the yelk gradually flowed out, leaving an empty space at the "*upper pole,*" and that "in the superior space of the egg, which had become empty," he saw at one time "active," and in other instances, "motionless filaments" or "*spermatozoa.*" Before we can give implicit credence to Major Munn's discovery as to the situation of the "*spermatozoa,*" we must learn that some more accurate observer has confirmed it;—remembering plate L above referred to, in fig. A of which the number of joints is incorrectly given, not a single joint being like any in the bee, and joints 1, 2, 3, called the accumulating trumpets of sound, have no existence in any bee we have ever seen;—and yet the whole is stated to be figured by the aid of the microscope!

From the following passage we are led to suppose that Major Munn regards all the species of aculeate honey-bees as mere varieties of *A. mellifica:*—"wherever "the bees construct combs to raise their brood in, or receive the stores of honey, "with the bases of the cells in a vertical direction, and the cells themselves "horizontal, there will be found the true species of *Apis mellifica;*" so that we are to regard *A. dorsata, A florea,* and *A. indica,* as mere varieties.

The first 167 pages of the book are entirely devoted to Major Munn's own observations, and to extracts from other works. In these there will probably be found some useful hints for the bee-master; for it can scarcely be possible, considering the number of years during which Major Munn has attended to bee culture, that some new phase in their economy has not presented itself to him: this portion of the work will no doubt be fully investigated by his brother apiarians, who will not fail to credit him with all such discoveries as he has been fortunate enough to make.

ENTOMOLOGICAL SOCIETY OF LONDON, *20th February,* 1871. A. R. WALLACE, Esq., F.Z.S., President, in the Chair.

Mr. Bond exhibited a hybrid between ♂ *Bombyx Pernyi* and ♀ *B. Yamamai,* bred by Dr. Wallace, presenting the form of one parent with the colour of the other. Also a *B. mori,* still retaining the larval head.

Mr. McLachlan called attention to the first record of such a malformation, being a paper by O. F. Müller in "Der Naturforscher" for 1781.

Mr. Smith said that Prof. Owen had observed that the hieroglyphic inscriptions on the monuments in Egypt were obliterated by the mud nests of a wasp, *Rhynchium brunneum;* and Mr. Smith remarked that an example of this wasp had been found by Dr. Birch when unrolling an Egyptian mummy.

Mr. Smith further called attention to a passage in "Pepys's diary," dated in 1665, proving that observatory bee-hives were then in existence.

Mr. Müller read a paper on the "Dispersal of non-migratory insects by atmospheric agencies," in which he had collected numerous records of showers of insects after hurricanes and other violent atmospheric disturbances; and he stated his belief that by these means many points in the present geographical distribution of species might be explained. In the discussion that followed, it was suggested that migration did not exist in insects, in the sense to which the term was applied to birds, and that the so-called migration of the former, either habitual or occasional, was in a great measure dependant upon the supply of food.

6th March, 1871. The President in the Chair.

The following gentlemen were elected:—Baron De Selys-Longchamps, as Honorary Member; the Rev. T. A. Preston, as Ordinary Member; and Mr. G. C. Champion as Subscriber.

Mr. Jenner Weir exhibited a small collection of butterflies from Madagascar.

Mr. Smith exhibited two small branches of ash, from which the bark had been removed by a hornet, as observed by the Rev. J. Hellins. He found that Réaumur had recorded a similar habit, and he believed it was for the purpose of extracting the sap for food, and not for obtaining building materials for its nest, the latter, according to his experience, always being formed from dry and decayed wood. Mr. Smith further called attention to an assertion that *Fulgora* is luminous, in a letter from the Marquis Spinola published in the "Revue Zoologique" for 1844: he maintained his belief that *Fulgora* is occasionally luminous, notwithstanding what had been said and written to the contrary.

Mr. Dunning exhibited a parasite from the peacock, which was clearly *Pediculus pavonis,* of Linné, though by Nitzsch, and modern writers, it was called *Goniodes falcicornis,* Nitzsch quoting Linné's name as a synonym.

Mr. Müller read "Notes on a *Cecidomyia* forming galls upon *Campanula rotundifolia.*"

Mr. Lewis exhibited instances of antennal malformation in *Lepidoptera.*

Dr. Sharp communicated "Notes on some British species of *Oxypoda,*" in which he described four as probably new to science.

Mr. Lowne read a paper "on immature sexuality in insects," in which he stated his belief that what appeared to be species sometimes originated from the early development of the sexual organs before the acquirement of adult characters. He also thought the larval and pupal conditions of insects were acquired, and not direct, stages of development.

Mr. Briggs detailed experiments made with a view of determining whether the numerical proportion of the sexes in insects, or sex itself, depended upon the nourishment of the larva; and stated that the results negatived any such supposition.

REMARKS UPON THE CLASSIFICATION OF THE *HESPERIDÆ*.

BY A. G. BUTLER, F.L.S., &c.

In a recently published part of the Regensburg "Correspondenzblatt," my paper on the *Hesperidæ* in the British Museum (Ent. Mo. Mag., p. 55, Aug., 1870, *et seq.*) has been rather roughly handled by Dr. Herrich-Schäffer; and as that gentleman has sent me the pages of his "*Prodromus*" in which his criticisms appear, I feel bound to take some notice of them.

In my paper above referred to, I objected somewhat strongly to the manner in which Dr. Herrich-Schäffer had indicated a number of new species, the space accorded to each being one or two lines of a new form of description, unaccompanied by localities. Dr. Herrich-Schäffer replies, that the absence of localities is due to the poverty of his collection, which being, to a great extent, derived from ancient cabinets, has been, for the most part, furnished with localities from the works of Donovan and Fabricius, "In Indiis," &c.; then, after enumerating the various cabinets, public and private, to which he has had access,* to my infinite relief he tells us that he "never intended to give descriptions, and, least of all, descriptions after the manner of Hewitson's or Felder's."

In his remarks respecting my identification of *Hesperia*, Dr. Herrich-Schäffer gives me the credit of departing from my own rules, but as I am convinced that he has not rightly understood the rules by which I was guided, I will again state them as plainly as possible:—

1. If a genus be *insufficiently* characterised, and no type be specially mentioned by the author, the person who subsequently divides the genus ought to take the first species mentioned as the type.

2. If a genus be divided by its author into two or three sections, that section which agrees best with the description ought to be considered typical.

Following out these rules, I adopted the first species of the second section as the type of *Hesperia*, and, as I considered the slightly marked variety of *P. Ladon* of Cramer to be that species, I rejected Swainson's genus in favour of Fabricius'; as regards the "paullo major" of the Fabrician description, it is nothing to the vague comparison in the description of *Pap. Pirithous*, Fabr. (an *Ixias* compared with an *Amauris*).

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* Amongst these he mentions the collection of the British Museum, which, to my certain knowledge, he cannot have seen for the last eight or nine years, and which, having been only recently arranged, must, when he saw it, have been fully in a condition to justify his remark—"Dass bei dieser Gelegenheit keine verwendbaren Notizen gessamelt werden können."—A. G. B.

The succeeding observations are chiefly touching the position of species in the various genera: as regards these I need merely remark that, as I have tested the characters offered by neuration and leg-spines, and find little or no variation, even between such remote groups as *Goniurus* and *Achlyodes*, I have preferred to follow out the more reliable characters offered by the palpi and antennæ, which certainly separate the *Hesperidæ* into very natural looking genera; as to *Hesperia Aunus*, Fabr., being a "*Lycænine*," an examination of the type in the Banksian cabinet would convince Dr. Herrich-Schäffer himself that it was identical with Hübner's "*Nais*," which is certainly a *Goniurus*.

The new genera founded in my paper must stand or fall upon their own merits: up to the present time I have been daily more convinced that they are natural and well-defined.

British Museum: *March*, 1871.

NOTES ON *CARABIDÆ*, AND DESCRIPTIONS OF NEW SPECIES (No. 3).

BY H. W. BATES, F.Z.S.

XYSTOSOMUS HILARIS, n. sp.—*Oblongo-ovatus, paulo convexus, læte viridi-æneus, antennis palpis pedibusque rufo-testaceis, capite antice thoracis elytrorumque marginibus rufescentibus; capite sulcis frontalibus longis et profundis; thorace transversim quadrato, antice paululum rotundato et angustato, angulis posticis rectis, basi utrinque fovea magna lævi et sulco transverso, aliquantum obliquo, lineam dorsalem haud attingenti, juxta angulum carinato: elytris basi thorace latioribus, regulariter ovatis, striis omnibus fortiter impressis et punctatis,* 2nda *apicem versus profundiori sed apicem haud attingenti,* 3—7 *ante apicem evanescentibus, striola recurva profunda antice hamata; corpore subtus rufo-piceo.*

Long. 2⅕ *lin.* ♂. *Tars. ant. art.* 2 *dilatatis.*

Ega; one example found running on the trunk of a felled tree in the sun. The interstice between the two marginal striæ of the elytra is a little narrower than the rest.

XYSTOSOMUS SCULPTICOLLIS, n. sp.—*Obovatus, fortiter convexus, nigro-æneus, antennis palpis pedibusque flavo-testaceis; capite sulcis frontalibus latis, marginibus (prope oculos) acute carinatis; thorace quadrato, antice gradatim vix rotundatim angustato, dorso valde convexo et sex costato, costis duabus medianis integris approximatis, exterioribus gradatim brevioribus, basi utrinque late impresso, lævi, sulculo obliquo per impressionem ducto, juxta angulum carina elongata; elytris ovatis, grosse punctato-striatis, striis prope basin sulciformibus, prope apicem lævioribus,* 2nda *ibi fortiter impressa, striola recurva, profunda, curvata.* *Long.* 1⅓ *lin.*

This extraordinary little *Bembidiide* is closely allied to *X. hilaris*, and was found in a similar situation at Ega, Upper Amazons, running on the trunk of a felled tree. The longitudinal ribs of the thorax are narrow, and only the two central ribs reach the anterior and posterior margins.

XYSTOSOMUS ELAPHRINUS, n. sp.—*Læte æneus, splendidus, hic illic viridi-tinctus, antennis palpis pedibusque piceo-rufis; oculis maximis, sulcis frontalibus elongatis, margineque juxta oculum fortiter sulcato; thorace parvo, transversim quadrato, antice paulo angustato, medio vix subangulatim dilatato, marginibus postice sinuatis, angulis posticis productis, acutis; supra paulo convexo, carina juxta angulum posticum intus curvata, basi fortiter oblique sulcato, linea longitudinali basi fortiter impresso: elytris ovatis, convexis, marginibus circa humeros reflexo-explanatis, supra punctato-striatis, stria* 1*ma antice vix impressa*, 2—6 *ante medium evanescentibus*, 3—9 *grosse punctatis et fortiter impressis, disco posteriori lævissimo, striola recurva antice fortiter hamata.* *Long.* $1\frac{3}{4}$ *lin.*

Ega. Also a remarkable species, which differs in form from the other species of *Xystosomus*, but not in its essential characters. The head is very similar to that of the genera *Elaphrus* and *Notiophilus*. *Bembidium cayennense*, Dej., appears to resemble it in form and sculpture, but it differs in several points, and I do not think the apical striola would have been overlooked by Dejean.

OBS.—None of the *Bembidiidæ*, except of the *Tachys* group (Gen. *Tachys*, *Pericompsus*, *Xystosomus*, &c.),. are found in the equatorial plains of South America. Species of the *Notaphus* group are numerous on the Mexican plateau, and re-appear in many species in Chili.

LIOTACHYS, nov. gen. (*Bembidiidæ*).

Corpus gracile, elongatum, convexum, nitidum. Caput parvum, collo crasso, tumido; sulcis frontalibus latis, profundis; oculis prominentibus. Palpi dense pubescentes. Antennæ robustæ, elongatæ, corpore paulo breviores, articulis 2—11 *pubescentibus. Thorax cordatus, postice fortiter constrictus. Elytra elongato-ovalia, lævissima, absque striis, stria suturali sola prope apicem distincta, striola recurva fortiter impressa, disco utrinque punctis duobus setigeris. Pedes elongati, graciles, toti pubescentes; tibiæ anticæ ad apicem angustæ, simplices.*

The curious little insect on which this genus is founded resembles in form the genus *Anthicus*. It is well distinguished from *Tachys* and *Pericompus* by the long and robust antennæ, which have the further peculiarity of being dark in colour, with the 5 terminal joints white.

The head and mandibles are of the same form as in *Pericompus.* The thorax is very convex, cordate and greatly constricted behind, forming a narrow waist to the body. The elytra are destitute of striæ, even the marginal and sub-marginal striæ being deficient. The apical striola, however, so characteristic of the *Tachys* and *Trechus* groups, is well developed, and is connected with a trace of the sutural stria at the apex; between the two is an elongate impression, simulating a second striola.

Liotachys antennatus, n. sp.—*Rufo-testaceus, nitidus, pedibus pallidioribus; elytris leviter infuscatis, basi maculaque utrinque subapicali rufo-testaceis; antennis art.* 1—6 *fuscis* (1—2 *pallidioribus*), 7—11 *albis.*
Long. 1⅙ *lin.*

Santarem, Amazons; on muddy banks of pools. In my own collection and that of Mr. Grut.

Tachys æneopiceus, n. sp.—*Oblongus, convexiusculus, æneo-piceus, palpis antennisque basi et pedibus flavo-testaceis; capite sulcis frontalibus fortibus, postice extus valde curvatis; thorace valde transverso, postice modice attenuato, angulis posticis productis, acutis, sulco basali margine paralello, integro, prope angulos fovea lævi, extus sine carina; elytris elongato-ovatis, striis quinque punctatis impressis suturali excepta apicem haud attingentibus, stria marginali profunda, integra; stria tertia punctis majoribus setiferis duobus.* *Long.* 1⅕ *lin.* 5 *exempl.*

Banks of River Tapajos. In some specimens the brassy-green colour is dark and brilliant, but the piceous ground colour is always visible on the sides.

Tachys platyderus, n. sp.—*Oblongo-ovatus, convexiusculus, rufo-testaceus, antennis basi pedibusque flavo-testaceis; capite sulcis frontalibus postice extus curvatis; thorace latissimo, postice modice attenuato, angulis posticis productis, acutis, basi utrinque fortiter sinuato, stria dorsali prope basin in fovea profunda desinenti, basi utrinque sulco transversali et prope angulum plica elevata lævi; elytris breviter ovatis, striis utrinque duabus solum distinctis vix punctulatis, in loco striæ tertiæ punctis majoribus duobus, striis marginalibus et sub-marginalibus prope apicem fortiter impressis et curvatis.* *Long.* 1 *lin.* 4 *exempl.*

Ega and Santarem, Amazons.

Tachys fraterculus, n. sp.—*T. platydero proxime affinis, differt striis elytrorum utrinque tribus distinctis fortiter punctatis; rufo-testaceus, elytris medio indistincte infuscatis; thorace transverso, angulis posticis*

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productis, acutis, basi utrinque fortiter sinuato, medio lobato-producto: cætera ut in T. platydero. *Long.* 1 *lin.* 1 *exempl.*

Santarem, Amazons.

TACHYS SULCIPENNIS, n. sp.—*Sub-convexus, rufo-piceus, postice pallidior, partibus oris, antennarum articulo basali pedibusque flavo-testaceis; capite sulcis frontalibus postice extus curvatis; thorace transverso, cordato, antice valde rotundato-dilatato, postice valde sinuatim-angustato, angulis posticis productis, margine basali sub-recto, stria dorsali prope marginem posticum in fovea desinenti, basi utrinque sulco transverso, prope angulum late foveato; elytris ovatis, striis utrinque tribus, ad basin solum impressis, stria tertia bifoveata.*

Long. 1⅗ *lin.* 1 *exempl.*

Ega. A well marked and elegant species.

TACHYS SQUIRESI, n. sp.—*T. fraterculo simillimus, differt thoracis basi utrinque nequaquam sinuato, etc. Oblongus, convexus, rufo-piceus, nitidus, palpis, antennis pedibusque flavo-testaceis; thorace valde transverso, postice modice recte angustato, angulis posticis haud productis, sub-obtusis, margine basali utrinque recto, medio paulo late lobato, basi supra inter striam dorsalem et angulum fovea profunda impresso; elytris striis utrinque tribus fortiter punctatis, alteris una vel duabus obsoletis.*

Long. 1 *lin.* 1 *exempl.*

Rio Janeiro. Taken by the late Mr. Squires.

TACHYS DROMIOIDES, n. sp.—*Oblongus, depressus, pallide testaceus, elytris fascia vaga mediana nigricanti; capite sulcis frontalibus brevissimis, thorace transverso, lateribus regulariter fortiter rotundatis et explanatis, juxta angulos posticos sub-rectis, margine basali medio lobato, ibique supra sulcato, juxta angulos late foveato: elytris oblongo-ovatis, planis, lævibus, iridescentibus, utrinque setis paucis longissimis è punctis orientibus.*

Long. 1—1¼ *lin.* 7 *exempl.*

Santarem and Ega, Amazons. In form and colour this species resembles several other tropical American species, but it differs in the elytra being quite free from impressed striæ, and in other points. The setiferous punctures are peculiar in not being placed in the situation of the 3rd interstice, or in the 3rd stria; one only is on the disc, towards the sides, the others are sub-marginal or sub-apical. The impressed sub-marginal stria near the apex is obsolete, existing only as a short impression distinct from the apex.

Kentish Town: *May*, 1871.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

(Revision of, and additions to, the *Aphrophoridæ* and *Ulopidæ*).

BY JOHN SCOTT.

(*Concluded from page* 243 : *Ptyelus campestris.*)

Somewhat larger than *P. exclamationis*, from which species it can at once be distinguished by the two white spots, and with which it may be mixed up in collections, as I have already eliminated it in one or two instances.

My attention was first drawn to this insect by a specimen sent to me by Mr. Dale, and taken by him at Glanville's Wootton, in October last; and I have since recognised it in my own collection and that of Mr. Douglas It has been taken by sweeping at Eltham, Leatherhead Common, and Southampton Common, in August and September.

Genus 2.—LEPYRONIA,* Am. et Serv.

Species 1.—LEPYRONIA COLEOPTRATA.

Cicada coleoptratra, L., S. N., v, 461, 23 (1767).

Cercopis angulata, Fab., Ent. Sys., iv, 53, 27 (1794); S. R., 97, 49 (1803); Panz., D. I., 103, 10; Fall., Hem. Suec., Cicad., ii, 13, 3 (1826).

Aphrophora coleoptrata, Germ. Mag., iv, 54, 11 (1821).

Ptyelus (*Lepyronia*) *angulatus*, Flor, Rhyn. Liv., ii, 130, 1 (1861).

Brownish-yellow, pale fuscous-yellow or yellowish, clothed with very short, depressed, shining, yellow hairs.

Head brown: *crown* more or less broadly black down the middle, about three times as wide along the posterior margin as the breadth across the centre; anterior margin obtusely angulate, in the middle scarcely acuminate: front plate ⌓ shaped, black, with a narrow, brown, central line, entire margin narrowly black. *Face* black, very convex, with a faint, longitudinal, somewhat wide, channel, sides sulcate, the sulcations filled with very short, shining, pale yellow hairs. *Antennæ* black, apex of the 3rd joint, brown.

Thorax: *pronotum* brownish-yellow, in front, more or less brown, with a faint central channel, and on either side, a little way behind the convex anterior margin, two deep foveæ, the outer one elongated. *Scutellum* black, with a wide central keel. *Elytra*: anterior margin very convex when viewed from above, and projecting considerably beyond the contracted inner portion, which runs almost in a straight line and with nearly a perpendicular side from the base of, to in a line with the apex of, the clavus, each elytra with a broad, black, ⦣ shaped streak; the inner margin of the diagonal arm is in a line with the basal angles of the scutellum, and joins the extremities of the straight one, which passes across a little below the apex of the clavus; marginal nerve, round the acute apex, piceous; inner nerves, next the apex, frequently reticulated with blackish or brownish. *Legs* black. *Coxæ*, 3rd pair, white or yellowish-white. *Tibiæ*, base of all the pairs, brownish-yellow; spines of the 3rd pair, yellow, tips black; fringe black. *Tarsi*, 3rd pair, 1st joint yellow, fringes, and remaining joints and claws, piceous.

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* Not yet discovered in Britain.

Abdomen black. Length, 2⅓ lines.

A most remarkable insect, and at once recognisable by its 'dumpy' form, and the angular black character on the elytra. I have described it at length, because I have every belief in its yet being found in Scotland, if not in the North or South of England. It is spread over the whole of Europe, and even some portions of North America, and seems to frequent willow, birch, and other bushes, in damp grassy situations, and to occur throughout the whole summer, and as late as the end of October.

II.

Genus 3.—APHROPHORA, Germ.

Head: crown with a central keel; anterior margin obtuse angulate, scarcely acuminate, sides sometimes very slightly waved. *Face* convex. *Rostrum* 3 jointed, the 3rd joint longest, reaching to beyond the 1st pair of coxæ. *Ocelli* at least one and a-half times as far from the eyes as they are from each other.

Thorax: pronotum hexagonal, similar in shape to *Ptyelus*, and with a longitudinal middle keel. *Scutellum* short, generally depressed in the centre. *Elytra* longer than the abdomen.

Greyish-yellow, or fuscous-yellow, deeply and irregularly punctured throughout.

Head: crown short; along the posterior margin four times greater than across the centre, with a narrow ⌓ shaped plate in front, much wider than the ocelli, and margined with black; central keel pale yellow.

Thorax: pronotum, central keel pale yellow. *Scutellum* depressed in the centre, sides and apex unpunctured. *Elytra* dark greyish-yellow, punctures black, nerves prominent; next the anterior margin, two large yellowish-white patches, one, somewhat trapeziform, placed near the middle, the other, somewhat triangular, beyond the bifurcation of the 1st nerve, the inner branch of which it touches. ... .1. *alni*, L.

Yellow, deeply and irregularly punctured throughout.

Head: crown somewhat elongate, the width along the posterior margin 3½ times greater than across the centre; sides slightly waved, apex rounded; front plate as in *alni*.

Thorax: pronotum, anterior margin slightly waved, apex acuminate. *Elytra* yellow, with blach punctures, and without spots or patches.

2. ***salicis***, De G.

The above are the giants of the *Aphrophoridæ*, and measure four lines in length. Of the two, *alni* is much the commoner. Both are widely distributed, and may be taken throughout the whole summer. Flor, in the Rhyn. Liv., ii, 137, 3, describes a third species, *A. coriacea*, Sahlb., said to occur on *Pinus abies*. It is smaller than either of the two other species, and is worth looking for.

We now approach the *Membracina*, or 4th Section (*Iassida Membracina*, Stål, Hem. Afr., iv, 83), in the first family of which, *Centrotidæ*, we have two genera, each represented by a single species. These are *Centrotus cornutus*, L., known by its two lateral spines and one posterior spine, and *Gargara genistæ*, Fab., in which the lateral spines are wanting. Both are so well known as to need no further notice here. In the 2nd family, *Ulopidæ*, we have again but one genus, *Ulopa*, which, until now, has only boasted of the commonest of the common among species, viz., *obtecta*, Fall. Not well adapted for leaping, the individuals of this species lie lazily all the summer at the roots of heath, &c., the heat being too great for them to go abroad; and in winter are heaped up in numbers amongst the flowers and seed-pods which have fallen to the ground and are collected in little masses at the roots, and these they so resemble, that, until the insects move, you can scarcely say which is which. As the genus *Ulopa* has but few representatives throughout the whole world, I consider the addition of the following species of more than ordinary interest.

Genus 1.--ULOPA, Fall.

Species 2.—Ulopa trivia.

Ulopa trivia, Germ., F. Ins. Eur., fasc. iv, tab. 21 (1812); Mag., iv, 56, 4 (1821); Burm., Gen. Ins, tab. 3 (1838).

Pale yellowish-white. Elytra with three longitudinal black streaks.

Head: crown black, thickly and deeply punctured, with a broad yellow streak down the middle and a narrow one adjoining each eye; anterior margin elliptic. *Face* black, with a yellow middle line. *Antennæ* yellow. *Eyes* pale brownish.

Thorax: pronotum yellowish-white, thickly and deeply punctured; within the anterior margin and on each side of the middle, a deep, transverse, black impression; posterior margin narrowly black on either side of the middle. *Scutellum* yellowish-white, punctured; before the middle a transverse channel, basal angles broadly piceous or black. *Elytra* pale yellowish-white, ocellate punctate; *clavus* with a black streak throughout its entire length, broad at the base and narrowing gradually until it reaches the apex: *corium*, 1st and 3rd longitudinal nerves black, the colour on the former extending for a little way upon the disc towards the anterior margin; marginal nerve round the apex, and sometimes a portion of two or more of the cell nerves, black. *Legs* pale yellow; *claws* brown.

Abdomen pale fuscous-brown. Length 1 line.

Altogether a much smaller and handsomer insect than *obtecta*, from which it is at once to be recognised by its pale colour and the three longitudinal black streaks.

I have made the description from a ♂ example in the collection of J. C. Dale, Esq., who took it at Winfrith, near Lulworth, on August 16th, 1836, by "sweeping long coarse grass near furze bushes." Like *obtecta*, I expect that it is of very retired habits, and will be easiest found by searching at the roots of furze bushes, in similar places to that named above.

Lee, S.W.: *March*, 1871.

Note on Scydmœnus (Eumicrus) rufus, Müll. and Kunze, a species new to the British lists.—Mr. G. C. Champion has recently been fortunate enough to capture a single example of this most interesting species in rotten wood in Richmond Park. The clear rufous colour and peculiar facies of the insect at once attracted his observation; but his endeavours to obtain further specimens at the time, and my own in his company shortly afterwards, were not successful.

S. rufus is a trifle smaller than average *fimetarius*, but cannot be satisfactorily likened to any recorded British species, on account of its entirely rufo-testaceous colour, very short oval elytra, and almost globose thorax. It is very shining, having scarcely any pubescence, no perceptible foveæ at the base of the thorax or elytra, and no punctuation except on the elytra, where it is sparse and slight. The legs are long, with the femora somewhat abruptly thickened towards the apex; and the hind pair seem to start almost from the apex of the body.

The allied *S. Hellwigii* (which is not unlikely to occur here, as it is found in France, Sweden, and Germany) is rather larger than *S. rufus*, with longer prothorax and elytra, and the head of its male deeply excavated behind.

These two form Thomson's genus *Cholerus*, distinguished by him from *Eumicrus* by its globose-ovate prothorax, which has no basal foveolæ, its non-foveolate elytra, and its simple tarsi in both sexes (the basal joint of the posterior pair being twice as long as the second). Associated with *Eumicrus*, they may be known from all our other *Scydmæni* by the apical joint of their maxillary palpi being scarcely visible, conic, and broad at the base (in fact, merged in the sub-apical joint), instead of slender and distinct.—E. C. Rye, 10, Lower Park Fields, Putney, S.W., *April*, 1871.

Note on a species of Corticaria new to the British lists.—Mr. Champion has also recently taken, under dry bark, in Richmond Park, an example of a *Corticaria* decidedly new to our list, and of which I have myself been so lucky as to find a pair in another part of the same Park, under similar conditions. As in the case of *S. rufus*, a visit to both localities by Mr. Champion and myself in company has failed to produce further specimens.

These insects are, of our recorded species, most nearly allied to *C. serrata*, from which they differ in their rather larger size, flatter and less oval build, larger antennal club, laterally less rounded thorax (of which the denticulations are finer behind, and the punctuation is not quite so close), and less evidently pubescent but more finely punctured elytra,—the interstitial rows and the striæ themselves being equally delicate, and so close that the surface seems very delicately transversely sub-strigose. These characters accord sufficiently well with those of *C. obscura*, Ch. Brisout (in Grenier's Cat. et Mat. 1863, p. 73); but that species (stated by its describer to be often confounded with *C. serrata*) should be pitchy-black, with the elytra rather lighter towards the apex, so that it is *darker* than *serrata*, whereas these Richmond insects are of the same ferruginous-red as light *serrata*. Seeing, however, how much that species varies in colour, some latitude may be allowed to *C. obscura*. Unfortunately, the present state of affairs in Paris prevents me from obtaining M. Brisout's opinion on this point. I find no description at all according with my insect in Mannerheim's monograph.—Id

Note on Cryptophagus Waterhousei, Rye.—I have little, if any, doubt that the Swedish insect referred to by Thomson in Skand. Col., v, p. 257, as a monstrosity of *Cryptophagus acutangulus*, in which the thoracic anterior callosities were on *both sides* confluent with the lateral denticle, should be referred to the species shortly afterwards described by myself (E. M. M., vol. iii, 1866, p. 101) under the above name. It is in the highest degree improbable that so outrageous (and in both cases *equilateral*) a development should accidently occur in two instances; and I may observe, that, out of a very large number of *Cryptophagi* examined by me, including, of course, very many *acutangulus*, I have never seen such a peculiarity as that referred to by Thomson in any one instance, even on one side of the thorax. Compared more strictly with *C. acutangulus*, to which it is undoubtedly very closely allied, *C. Waterhousei* (apart from the vast difference of the thoracic callosities) has the sides of the thorax much more contracted from the front towards the base; and, even admitting the possibility of an equilateral amalgamation of the anterior and lateral teeth, the very *lowest* part of what would in that case be the lateral denticle is still very much *above* the normal position of the *highest* part of the lateral denticle of *acutangulus*. The punctuation of the thorax, moreover, is still closer, and of the elytra more delicate than in the latter; the elytra themselves being somewhat shorter and more abruptly rounded at the apex. It would be interesting to know if these peculiarities exist also in Thomson's insect above mentioned.

I am the more inclined to draw attention to *C. Waterhousei*, as I believe it has been considered to be an ultra-European and introduced species, on account of its having been taken in one of the corridors of the Crystal Palace at Sydenham. Personally, I am convinced of its truly British origin, having often collected in those corridors, which are mere empty passages at some considerable distance from the main building, and on the alternately open windows of which myriads of our commonest *Cryptophagi*, *Latridii*, &c., may, with occasionally better undoubted (*never* accompanied, so far as my experience goes, by *any* dubious) British species, be observed in fine spring weather.—Id.

Capture in Northumberland of a species of Aleochara new to the British list.—Some time ago, a specimen of an *Aleochara* was taken here, which Dr. Sharp referred rather doubtfully to *A. villosa*, Mann., and on one of the warm days of last month my brother found a second example on our stable-'midden'; this accords so well, in the majority of its characters, with the description by Kraatz (Ins. Deutsch., ii, 94) of that species, that I think *A. villosa* may be added, with a very small reserve of doubt, to our list of native insects.

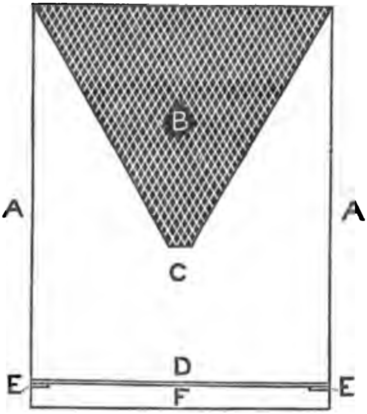
As described, it somewhat resembles *A. lanuginosa*, from which it differs in having the antennæ longer and thinner, the 2nd and 3rd joints being equal in length, and the 4th joint longer than broad; in being flatter, more parallel, much less shining, with the thorax proportionately narrower, and the elytra (which are distinctly and thickly punctured) not so distinctly sinuate at the outer angles. The chief doubt as to the correct identification of this insect seems to arise from the punctuation of the upper surface of its abdomen; that portion of *A. villosa* being described by Kraatz as having its anterior segments sparingly and finely punctured, with the apex almost entirely impunctate; whereas in my insects the anterior segments are apparently only more delicately punctured than in *lanuginosa*, and the apical segment is very evidently and tolerably closely punctured.

The whole insect much resembles *A. grisea*, Ktz., in size, build, dullness, and facies.—Thos. Jno. Bold, Long Benton, Newcastle-on-Tyne, *April 8th*, 1871.

Capture of Hydnobius Perrisii near Gateshead-on-Tyne.—In our Museum collection of *Coleoptera* I find an example of the very rare *Hydnobius Perrisii*, Fairm., which was taken at Saltwell, near Gateshead, by the Rev. R. Kirwood.—Id.

Capture of Pissodes piniphilus at Sunderland.—The same collection contains two specimens of *Pissodes piniphilus*, Herbst., which were taken by the above gentleman at Sunderland; having probably been imported in timber-laden ships from the north of Europe. It would be as well, however, if some of our Scottish friends would keep a sharp look out for this species, as it may easily be passed over as small *notatus*, from which it may, however, be known at once by the first fascia of its elytra being obsolete, and the second nearer the middle than in that species, whilst in the thorax the punctures are wider apart, and not confluent.—Id.

A new Moth-trap, without the aid of light.—Being in the country some years since, I happened to see some bottles, containing beer and sugar, hung up against fruit-trees to catch wasps. Having obtained the gardener's permission to break one, in order to see if it contained any moths, I found several, including some species not in my collection, but all spoiled through being saturated with the mixture. Some time after, it occurred to me that the trap of which a diagram is given would be useful for catching moths without spoiling them.



A.A: a round tin box open at the top, but closed at the bottom; having a diameter of 6 inches, and being 10 inches long. B: a cone made of perforated zinc, about 6 inches long, fitting closely to the sides of the tin box at the top, and terminating in a point, C, where there is a hole one inch in diameter. D: another piece of perforated zinc fitting exactly against the sides, and resting on four small pieces of tin (E. E.), to prevent it from falling to the bottom. F: a piece of flannel, saturated with sugar and rum.

If this be placed in any open place at dusk, I am quite satisfied the entomologist will find it repay him. I shall be happy to procure one for any gentleman who may require it. I should think the expense of making could not exceed four shillings.—C. A. Shaw, 7, Bloomfield Terrace, Harrow Road, W., *April*, 1871.

On the hybernation of tree-feeding Lepidopterous larvæ.—Several of my correspondents have mentioned to me the difficulty they experience in rearing hybernating larvæ of the tree-feeding species, more especially of those which feed on oak.

Usually, these larvæ appear to do pretty well until about the beginning of March, they then begin to wander about, apparently in search of food, and as it is usually difficult to obtain food for them so early in the season, they very soon shrivel and die.

Now, from my own experience, I have arrived at the conclusion that tree-feeding larvæ begin to feed very early in the year—probably as early as the middle of February, if the weather be mild—and that they manage to live and thrive upon the buds and tender bark of their respective food plants long before the young leaves begin to expand.

I have at the present time a number of *B. roboraria* larvæ feeding in this way, some of which, confined in a muslin sleeve on a growing tree have done very well, while others that I kept until very recently in a breeding cage upon the twigs upon which they hybernated, were beginning to decrease in number rapidly until I supplied them with fresh twigs, upon which they are now operating to their manifest advantage. I have often wondered why larvæ that are so small at the time of their hybernation should be so large as soon as the buds begin to burst, and this appears to settle the difficulty.

Very possibly I may be here reiterating what to many people is a well ascertained fact; but, as I have reason to believe that some—even of our best—entomologists labour under the impression that larvæ which feed on leaves in the autumn wait until the leaves expand before they re-commence feeding in the spring, perhaps the publication of these remarks may help to dissipate their delusion.—W. H. HARWOOD, Colchester, *April*, 1871.

Lepidoptera at Guestling in 1870.—The first part of the season was by far the worst I have had since I began to collect in 1865; the only insect worthy of note being *Platypteryx lacertula*, April 20th, which seems very early for this species. June 22nd, *Platytes cerassellus;* abundant in grassy places among the shingle at Pett. June 28th, *Cidaria picata* (rather common this year). June 29th, *Phibalapteryx tersata* and *Miana arcuosa;* one of each at light. July 6th, *Rhodophæa tumidella;* pretty common at sugar, but not very easy to capture. July 7th, *Heliothis marginata;* one at sugar. July 8th, *Cryptoblabes bistrigella* and *Phycis carbonariella*, one of each at light, also one of the former by mothing: *Ephestia elutella*, one, I think, at light: *Rhodophæa advenella*, pretty common, with *R. consociella*, at sugar, and also came to light. These two species and *R. tumidella* were very welcome among the swarms of common things which then came to sugar. July 16th, *Hypenodes albistrigalis;* several came to sugar about this time. July 18th, *Acidalia inornata;* as it imbibed the sugar it looked very different from *A. aversata*, for which it is, however, I fancy, often passed over. August 15th, *Tethea retusa*, by mothing; *Apamea fibrosa*, one specimen at the millpond; where also I took, September 1st, *Nonagria lutosa*.

In the above notes the date given is that on which the species was first observed.

I am sorry to say that the insect I recorded as *Boarmia roboraria* in Ent. Mo. Mag. for December, 1868 (No. 55, page 178), is only *B. consortaria*.—E. N. BLOOMFIELD, Guestling Rectory, *April*, 1871.

Spring Lepidoptera at Leominster.—This season seems likely to be a good one for insects. In this neighbourhood, spring moths have been more than usually common, if I may judge from the success I have had on the few nights I have been able to frequent the Sallow bloom. On Wednesday, March 22nd, I had once more the pleasure of taking *all* the species of the genus *Tæniocampa*. As usual here, *opima* was only represented by a single example, but the other kinds afforded excellent sport. Hybernated *X. semibrunnea* and *petrificata*, and *H. croceago* were also taken, giving promise, I hope, of ova. To-day, a lovely specimen of *D. salicella* was captured on the wing.

In the breeding cages, *C. ridens*, *E. coronata*, and *B. notha* were out as early as the 19th of this month, *C. suffumata* on the 20th, *A. pictaria* on the 21st, *E. albipuncta*, *E. versicolora*, and *N. trepida* on the 26th.—THOS. HUTCHINSON, Leominster, *March* 31*st*, 1871.

Capture of Noctua sobrina.—I omitted last August to send you a report of the capture at Rannoch of four *N. sobrina* at sugar by my brother and myself.—ID.

Stray notes on the Fen Lepidoptera.—Although the draining of fen land, which has been so extensively carried out in the Eastern counties, has doubtless greatly restricted the range of the fen loving insects, many of them still linger in the small swampy nooks and corners to be found here and there along the course of the rivers Yare, Bure, Waveney, &c., and are not exclusively confined to the large fens, such as Ranworth and Horning, so that I think there is little fear that they will be entirely exterminated.

For instance, last June, in some marshy meadows on the borders of Suffolk, *Phibalapteryx lignata*, *Tortrix costana*, and even *Glyphipteryx cladiella* were quite common; and, at a gas-lamp a short distance away, I had the good fortune to secure a specimen of *Meliana flammea*.

About the same time a young friend found, in a little fen a few miles down the Yare, *Papilio Machaon*, commonly, and also *Spilosoma urticæ* and *Hydrelia unca*. Later in the summer I went with him to the same spot, and although insects were very scarce, or loth to turn out, we managed to secure *Nudaria senex*, *Collix sparsata*, *Nonagria despecta*, *Peronea aspersana*, *Laverna propinquella*, *Elachista paludum*, and *Opostega crepusculella*.

In other small strips of marsh along the river side, I have met with *Phibalapteryx lignata* (two broods) in June and August, *Acidalia immutata* and *emarginata* commonly, larvæ of *Cidaria sagittata* feeding on *seeds* of *Thalictrum flavum*,* *Leucania straminea* on the reeds, *Apamea unanimis* flying in the evening, *A. ophiogramma* on blossom of *Scrophularia aquatica*, *A. fibrosa* and *Orthosia suspecta* at sugar, and *Plusia festucæ* flying at sunset round blossoms of *Lythrum salicaria*, *Mentha hirsuta* and *Stachys palustris*, in company with an occasional *Dianthœcia cucubali*. One specimen of this last also paid me the rare compliment, one windy night, of *settling on* and greedily sucking my sugar. In the absence of *Silene*, the larvæ feed in the capsules of *Lychnis flos-cuculi*, also freely eating the leaves.

Pionea stramentalis was rather common among the tall herbage, and *Schœnobius forficellus* (very variable) among the sedges and flags by the ditch sides, where also *S. mucronellus* and *Chilo phragmitellus* occurred, and *Orthotænia sparganella* among *Sparganium ramosum*. In September and the beginning of October, when *Nonagria fulva* was flying in abundance at dusk, I met with several specimens of *Pterophorus isodactylus* flying over the reeds and tall herbage, and at the same time a second brood of the common *Epione apiciaria* made its appearance. These fenny localities seem favourable to second broods. *Elachista cerusella* was very common among reeds in both June and August, and its mines in the leaves in July. *E. Kilmunella* abounded among *Carex* in September, *Eudorea pallida* was, of course, common all the summer, and *Peronea aspersana* and *Shepherdana* by no means scarce among *Spiræa ulmaria*, while *Phlœodes immundana* swarmed among alders.

A curious circumstance connected with the reeds deserves especial notice. One tall reed-bed, occupying a wide ditch or drain, was so attractive to insects that by sweeping it with the net at dusk I sometimes secured more insects than I could capture in the whole evening otherwise. Besides the *Leucaniæ*—*straminea*, *impura* and *pallens*—and the *Phryganidæ*, which were evidently at home—*Agrotis nigricans* and *tritici*, *Noctua plecta*, *rubi* and *umbrosa*, *Miana furuncula*, *Apamea fibrosa* and *oculea*, *Tethea subtusa*, *Gonoptera libatrix*, *Epione apiciaria*, *Zerene rubiginata*, *Pelurga comitata*, *Cabera pusaria*, *Eupithecia minutata*, *Ebulea sambucalis*, *Eudorea cembræ*, and *Tortrix heparana*—a most heterogeneous lot, where all to be

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* These larvæ being, I suppose, on their natural food-plant, were content to feed exclusively on the seeds. I was unable, by the most careful examination, to find any evidence of their having eaten the leaves, or gnawed the stems so as to wither them.—C. B.

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found sitting on the reed leaves, and many of them in plenty, while *Dianthœcia cucubali* was several times caught flying over. What the attraction might be, I am unable to guess. Certainly it was not honey-dew, or food of *any* kind; the leaves were clean, and the moths were not looking for food. Apparently the reed-bed was a comfortable lounge, and they were enjoying themselves.—CHARLES G. BARRETT, Norwich, 16*th March*, 1871.

Natural History of Camptogramma fluviata.—In the autumn of 1858, Intelligencer, vol. iv, p. 188, I published my first observations on this species, having then lately reared it from the egg, and proved that the difference between the light and dark forms of the imago was merely sexual. Since then I have reared many more broods from the egg, and have largely supplemented my early record of the various stages, until it seemed that the additional information thus collected might justify another and longer note.

A more easy species to rear in confinement I do not know; it seems quite tame and domestic; only let the temperature be warm enough, the larva feeds quietly and rapidly on food that grows everywhere; it spins up contentedly; ninety-nine pupæ out of every hundred produce perfect imagos, and these last again make no difficulty about pairing and continuing their race. In fact, cold alone, and no mysterious instinct as to certain seasons in the year, puts a limit to the number of broods in any given number of months. Indoors, if the food can be supplied, perhaps six or seven broods might be reared in a year; in 1862, I had a ♀ captured on May 22nd, and 152 days after, on October 21st, without forcing, I bred its great grand children, and then did not care to carry the strain further. Outdoors, of course, the character of the season would influence the number of broods, but in favourable times, with an early summer and mild winter, I feel sure there might be five broods: and in this I am supported by the published notices of captures made from May to January,* both months inclusive. In colder seasons there might be no more than three, or even two broods, every stage being greatly delayed by absence of warmth. Thus I have one brood recorded which went through the whole cycle of transformations in 29 days during a hot August, and another in a colder time which took 62 days; whilst the brood which hybernates in the pupa must, of course, take to its share a much longer period, from October or November till next May or June.

The larva, when at large, is no doubt polyphagous, and I know it has been found or reared on *Senecio vulgaris*, *Polygonum persicaria*, and *Agrimonia eupatoria*; like other geometers that feed on low plants, it is quiet and sluggish in its movements.

In this neighbourhood, with the exception of one specimen beaten out of a hedge near a salt-marsh, and a few others taken at ivy-flowers, the great majority of our captures of the imago have been made at the street gas-lamps.

The egg presents no striking peculiarity; it is bluntly oval in outline, flattened; the shell glistening, and faintly covered with very shallow and irregular reticulation; in colour very pale yellow, or greenish-yellow, turning smoky just before the exit of the larva.

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* Mr. H. Rogers records the capture of a female at sugar, on January 1st, 1858. Intelligencer, vol. vii, p. 52.

The larva is subject to a great range of variation in colour, but there is one variety which certainly outnumbers the rest, and may fairly be taken for the type; the description of the figure suits all varieties.

The length, when full-grown, about three-quarters of an inch, the figure proportionately stout for an ordinary geometer, tapering towards the head, cylindrical behind and slightly flattened forward; head smaller than second segment, with its lobes well defined. The ground colour greenish-grey, the head striped with the commencement of the dorsal and sub-dorsal lines; the dorsal line dusky and slender, dividing the lobes of the head, and running thence continuously to the commencement of fifth segment; the sub-dorsal stripe begins also on the head, and is rather paler than the ground, but edged on either side with a fine dusky line; on the folds between segments 5—10 are five diamond-shaped marks, whitish, but bordered with dusky or blackish outlines, and with the dorsal line appearing in the centre of each as an elongated black spot; the centre of the back, after the middle of segment 10, becomes much paler, with faint blackish Λs instead of diamonds, and the sub-dorsal lines grow indistinct; just above the spiracles is a dark line, continuous on segments 2—5, and 10—13, but showing only as five black dashes at the intermediate folds; the spiracles small and obscure, but ringed with black, and placed on ground slightly paler than the rest of the body; the tubercular dots are whitish-grey, the segmental folds show slightly reddish; the belly is pinkish-grey, paler down the middle, and with a central and two sub-spiracular fine dusky lines; the ventral legs have a dark streak, and the anal legs a light streak down them.

Some varieties have the markings as above, but the ground colour all over pinkish-grey; others have a grey ground, without any green or pink tinting in it.

There is a very decided variety of a light yellowish-green colour, without much noticeable marking, though it is generally possible to trace the dorsal and sub-dorsal lines faintly, whilst the row of dark dashes above the spiracles show firm and distinct, being apparently the last to change or disappear of all the markings.

In some broods occur varieties, having the greenish-grey ground colour, and the usual markings on the front and hind segments, but with the first half of the back of each diamond-bearing segment coloured soft, dull pink, so that from above the larva looks to be banded with green and pink; the diamonds pinkish-white; the belly greenish.

There is another variety with a purplish bloom laid over a dull green.

Another has the greenish-grey ground, but with all the markings, diamonds, and lines, scarcely showing except just at the folds, where the dusky lines that form them turn red.

Another has the ground on the back of a dull pinkish-brown, all the lines showing light red at the folds. Another again has the ground pale brown, the diamonds bordered by darker brown tinged with olive, the edgings of the sub-dorsal stripe distinct and wavy, and bearing some small black dashes on its under-side at the end of each segment; the black dashes above the spiracles very distinct; the spiracles themselves black.

As in the greenish varieties sometimes, so also with the brown ones, there are individuals which show a purplish bloom.

In some of the paler greenish and ochreous varieties, the back of the hinder segments bears, instead of Λs, some pairs of indistinct freckled lines, arranged almost in the form of stunted crosses.

When full-fed the larva retires into any cover it can find at hand, and either just below the surface of the soil, or amongst moss or dried bits of its food, constructs a perfect but thin and weak cocoon of silk, drawing in enough particles of dust, &c., to give it an oval form. The pupa is a quarter of an inch in length, with a rather irregular contour; the lobes of the head and the eyes prominent; the wing-cases extending two-thirds of its length, the antennæ and leg-cases showing; the abdomen tapering off rather rapidly, and ending in a stumpy spike furnished with two fine spreading hooks; the skin polished, yet finely punctured, the wing-cases more finely punctured still: the colour is a rich brown, with the abdominal divisions light red.

I have bred several hundreds of the moths at various times, but never yet met with an instance of either one of the sexes assuming the colouring of the other.—J. Hellins, Exeter, 14*th February*, 1871.

Notes on the Trichoptera of Zetterstedt's "*Insecta Lapponica,*" *in connection with the nomenclature of British species.*—Pastor Wallengren has recently published in the "Öfversigt af Kongl. Vet. Akad. Förhandlingar" for 1870, notes on various Swedish Insects under the title "Anteckningar i Entomologi." A portion of these notes (pp. 146—151) is of great interest to the student of *Trichoptera*, inasmuch as it consists of the long desiderated revision of some of the species described by Zetterstedt in the above-mentioned work, and in some respects it affects my Catalogue of British *Neuroptera* just published. Zetterstedt placed all species under the Linnean genus *Phryganea*, indicating several sections. Wallengren has at present given us only a revision of the species of the division *Æquipalpia*, but promises the *Inæquipalpia* shortly; and in a letter to the writer he announces a Monograph of Swedish *Trichoptera* in progress. As a fellow-countryman of the illustrious Linné, he has also been able to fix with tolerable certainty several of the hitherto doubtful species of the "Fauna Suecica."

P. nubila, Zett., is referred to *Rhyacophila vulgaris*, Pict. *P. charpentieri* is confirmed as *Philopotamus montanus* (Don.) Hag. *P. umbrosa* is *Polycentropus flavomaculatus*, Pict.; but there were also confused with this, other species of the genus, and a *Cyrnus*. *P. Waenerii* is *Tinodes lurida*, C.; and Wallengren considers it is also certainly *Waenerii* of Linné, confirming Kolenati's views; hence Linné's name must take priority over Curtis's. *P. aureola* is *Tinodes pusilla* (Curtis) McLachlan, a name borrowed by Curtis from Fabricius; Zetterstedt's name must take priority, as Curtis's citation is extremely doubtful. *P. griseola* is the same as *Waenerii*. *P. hirta* is *Mormonia hirta*, F., of our lists. *P. ciliaris* is *Notidobia ciliaris*, L. *P. chrysocephala* is a *Sericostoma*, and probably *S. Spencii*, as already indicated. *P. minuta* he considers to be *Silo pallipes*, F.; but I confess myself rather doubtful on this point. *P. tincta* is confirmed as *Brachycentrus subnubilus*, C. *P. vestita* is *Molanna angustata*, C.; Kolenati has referred this species both to *Molanna* and to the insect in our list as *Apatania vestita*, an extraordinary freak of double determination. I had avoided endorsing Kolenati's opinion so far as regards the *Apatania*, by attributing the name to him and not to Zetterstedt. The *Apatania* must be re-named, and I propose to call it *A. Vallengreni*. *P. albicans* is likewise the *Molanna*, and in this case Kolenati has also applied the name as a synonym of *M. angustata*, and to a species of *Brachycentrus* from Russia, not yet found in Britain; the latter will require re-naming. *P. barbata* is confirmed as *Leptocerus nervosus*, F. *P. hectica* is confirmed as *Setodes ochracea*, C. (*pilosa*, Müller, according to Hagen). *P. ochrata* is *Triænodes bicolor*, C., to which I had referred it. *P. 4-fasciata* is the well-known *Mystacides 4-fasciata*, F., but Wallengren considers that *P. longicornis*, L., was described from a common form of the species. This I think is very probable, and am quite willing to drop the more familiar name given by Fabricius, in favour of the prior Linnean one. *P. albifrons* is the common *Leptocerus albifrons*, L. *P. azurea* equals *Mystacides azurea*, L., and is identical with *M. nigra*, Pict., Hag., McLach.; whereas, according to Wallengren, and I believe he is right, *atra*, Pict., Hag., McLach., equals *nigra* of Linné. *P. nigra* of Zetterstedt is not sufficiently clear to Wallengren; it is certainly not *nigra* of Linné, and is neither a *Leptocerus*, *Mystacides*, nor *Setodes*, possibly not even belonging to the *Leptoceridæ*. Can it be a *Molannodes?*—R. McLachlan, Lewisham, *March*, 1871.

A new British Geometer.—I have just had a very fine ♂ example of *Nyssia lapponaria*, Duponchel, submitted to me for determination. It was, I believe, captured by Mr. Warrington in Perthshire; but a more detailed account shall appear in our next.—H. Guard Knaggs, Kentish Town, *April 20th*, 1871.

Jumping May-buds.—I would advise our readers to gather boughs of "May," in order to observe the antics of a coleopterous larva which produces the above phenomenon.—Id.

HAGGERSTON ENTOMOLOGICAL SOCIETY.—Mr. E. Barlow, President, in the Chair.

Members elected.—Mr. Neave (February 2nd); Messrs. Parsonson, Senr. and Junr. (February 9th); Mr. W. Harrison (February 23rd); Mr. Mundy (March 3rd); Mr. Revell (March 16th); Mr. Gibson (March 30th).

Exhibitions.—The following are the more noticeable.—By Mr. Barlow,—*Anticlea berberata*, *Aleucis pictaria* (bred and living); by Mr. Elisha,—*Crambus paludellus*, *Schœnobius mucrorellus* and *gigantellus*, *Epunda lichenea* (larvæ); by Mr. Healy,—a *Lithocolletis* mine in the *upper-side* of a beech leaf, galls on *Cornus sanguinea*, economy of *Stigmonota Weirana*, *Anesychia funerella*, *Nemotois fasciellus*, *Cerostoma scabrella*, *Chrysoclista Schrankella*, *Sericoris euphorbiana*, *Euchromia flammeana*, *Asychna terminella*, *Glyphipteryx schœnicolella*, *Gelechia Knaggsiella*, *Parasia neuropterella* bred from heads of *Dipsacus sylvestris*, and many species of *Tenthredinidæ;* by Mr. Lorimer,— *Psodos trepidaria*, *Acontia luctuosa*, *Agrotis agathina*, *Catocala sponsa*, *Toxocampa craccæ*, *Sterrha sacraria;* by Mr. Harper,—*Tæniocampa miniosa*, *Nyssia hispidaria*, *Cymatophora ridens;* by Mr. Raine,—*Nyssia hispidaria;* by Mr. Pratt,—*Nyssia hispidaria;* by Mr. Boden,—*Nyssia hispidaria* (bred), *Agrotis cinerea*, *Catocala promissa*, *Dasycampa rubiginea*, *Cosmia pyralina;* by Mr. W. Harrison,—*Agrotera nemoralis* (bred); by Mr. Mundy,—*Nyssia hispidaria;* by Mr. Bush,—*Nyssia hispidaria*, *Cymatophora ridens* (bred); by Mr. Bryant,—*Platypteryx hamula;* by Mr. Burry,—*Brephos notha;* by Mr. J. A. Clark,—*Notodonta chaonia*. Various additions to the Library and Cabinets were announced. 97 Members attended during March, and 127 during April.

[The above is abridged from a detailed report sent by the Secretary, Mr. Pratt; we are unable to print it *in extenso*. We notice a very important omission with respect to the exhibitions; *in no case is any locality given.*—Eds.]

ENTOMOLOGICAL SOCIETY OF LONDON, *28th March*, 1871.—A. R. WALLACE, Esq., F.Z.S., President, in the Chair.

Prof. P. M. Duncan, F.R.S., and E. S. Charlton, Esq., were elected Members.

Mr. Dunning read a letter from the Rev. L. Jenyns respecting the swarms of *Chlorops lineata* in the Provost's Lodge at King's College, Cambridge (see proceedings for Nov. 7th, 1870). Mr. Jenyns remarked that he had recorded a similar occurrence as happening in probably the same room, so long since as 1831.

Mr. Verrall exhibited *Pipiza noctiluca* from Rannoch, from the head of which proceeded a substance which he thought was a fungoid growth, but which several members considered was more probably the pollen-mass of an Orchid.

Mr. Müller exhibited a gall on the leaf of a species of *Carex*, sent to him by Lord Walsingham, from Thetford.

Mr. C. O. Waterhouse communicated a description of a new genus (*Apterocyclus*) and species of *Lucanidæ* from the Sandwich Islands, and described the latter as *A. honoluluensis*.

Mr. Wollaston sent "Additions to the Atlantic *Coleoptera*," in which he detailed the information acquired since the publication of his "Coleoptera Atlantidum" in 1865. In his introductory remarks he maintained his belief in his theory that the Atlantic Islands form the remnants of a once-existing Continent, broken up by gigantic catastrophes, in opposition to Mr. Wallace's idea that the insect population had been derived by involuntary immigration, the effect of storms and hurricanes. Mr. Bates and Mr. Wallace argued against Mr. Wollaston's theory, and maintained that a depression of from 12,000 to 15,000 feet, such as exists between the islands and the Continent of Europe, would require a length of time for its operation that could only be measured by geological epochs. Mr. Murray, on the contrary, thought that geologists exaggerated the time necessary for such depression; but he was opposed to Mr. Wollaston's theory of catastrophes.

April 3rd, 1871.—The President in the Chair.

The Secretary exhibited some beautiful coloured drawings of Chinese *Lepidoptera*, sent by Mr. Holdsworth of Shanghai.

Mr. F. Smith exhibited several instances of gynandromorphism in Aculeate *Hymenoptera*; among which was a specimen of *Apis mellifica*, partly male and partly worker.

Mr. Lewis called attention to a statement of Dr. Packard's, that *Lepisma saccharina* is capable of boring through hard substances, as affecting a contrary opinion expressed by the Society on an occasion when the insect in question was accused of having made a hole through a book. Mr. Horne said that *Lepisma* damaged silk-fabrics in India, causing holes in them when devouring the stiffening.

Mr. Lewis read a paper on the order of the groups of *Macro-Lepidoptera*, especially with regard to Doubleday's List, Knaggs' Cabinet List, and Newman's British Moths. He complained that the two former had made important changes in position and nomenclature, without stating any reasons for them, whereas the latter gave "Mr. Doubleday's approval" as sufficient to render such changes justifiable. He examined the arrangements suggested since the time of Linnæus, and severely criticised all changes made *sub silentio*, or as with the "approval" of some leading entomologist; stating that a writer should give his reasons only to the public.

Mr. Briggs condemned the coupling of *Tapinostola Bondii* and *Miana arcuosa* in one genus, as effected by Mr. Newman "with Mr. Doubleday's approval," and considered that the structure of the palpi was utterly opposed to the two species being congeneric.

END OF VOL. VII.

INDEX.

INDEX TO GENERAL SUBJECTS.

PAGE

A fact! ... 162

Abdominal appendages, On the importance of, in specific determination ... 43

Acanthosoma grisea, A fragment of a life-history of ... 53

Acidalia ochrata, Scop., a species new to our list, Occurrence in Britain of ... 138

Acridium peregrinum, a locust new to the European Fauna, Remarks on the recent migration to Britain of ... 1

Acronycta aceris, Early appearance of ... 17

„ alni at Hampstead, Capture of ... 41

„ menyanthedis, Note on the food-plants of ... 88

„ myricæ, Description of the larva of ... 83

Agrophila sulphuralis, at Wandsworth ... 86

Aleochara maculata (C. Brisout), Occurrence in Britain of... 136

„ new to the British list, Capture in Northumberland of a species of ... 275

Allis, Death of T. H. ... 90

„ 's Collection, Presentation of the late Mr. ... 117

Amara (Celia) from Belgium, Note on a new species of... 229

Andricus curvator, Hartig, in Britain, On the occurrence of ... 39

„ „ „ On the reniform "inner" gall of ... 230

„ inflator, „ occurring in Britain ... 157

Anisotoma new to the British List, Note on two species of ... 180

Anticlea sinuata in South Devon ... 86

Argynnis Euphrosyne deceived ... 109

„ Lathonia and Chœrocampa Celerio near Faversham in 1869, Capture of 85

„ Selene, Description of the transformations of... 114

Baridius, Note on œconomy of Mecinus and... 81

„ scolopaceus, Germ., a species new to Britain, Occurrence on the South Coast of 107

„ „ Note on British locality for ... 136

Bembidium quadripustulatum, Dej., Capture in Britain of ... 35

Bledius fuscipes, Rye, Note on... 10

Bombyx rubi, On the treatment of the hybernating larvæ of ... 143

Butalis incongruella to be henceforth called Amphisbatis incongruella ... 15

Butterfly-collecting in Switzerland, Notes on ... 258

Bythinus from Great Britain, Description of a new species of... 33

Callidium variabile at "sugar," Capture of Opilus mollis and ... 156

Callimome devoniensis, Parfitt ♀, Abundance of pupæ of ... 60

Camptogramma fluviata, Natural history of ... 279

Carabidæ allied to Carabus proper, On a new genus and species of ... 32

„ , Notes on, and descriptions of new species ... 218, 244, 266

PAGE

Cathormiocerus, Observations on a second British species of, and on the value of that genus ... 149
Catocala fraxini in the Regent's Park, Occurrence of ... 111
Cecidomyia, Synomymic notes on some species of ... 39
„ dorycnii, spec. nova, and of Callimome dorycnicola, spec. nova, its parasite, A preliminary account of ... 76
„ terminalis, Loew, pruning the top shoots of Salix fragilis ... 89
Cerura vinula, Variety in the egg of ... 117
Ceuthorhynchus sulcicollis, Gyll., Something like reflection in ... 36
Chelonia caja, Variety of ... 143
Chesias spartiata and obliquaria, Comparative descriptions of the larvæ of ... 260
Chœrocampa Celerio near Faversham in 1869, Capture of Argynnis Lathonia and ... 85
„ nerii at Birmingham ... 41
Chrysides parasitic on Odynerus spinipes, Further notes on the œconomy of the ... 250
Cirrhœdia xerampelina at Manchester ... 140
Cloantha solidaginis at Halifax ... 112
Coccinellæ, Note on the recent abundance of ... 12
Coleoptera, Additions, &c., to the list of British ... 205
„ Captures of ... 80
„ Note on a habit of certain Indian ... 59
„ Note on some ambiguously British species of ... 59
„ Note on varieties of British ... 36
„ Notes on Portsea ... 154
„ Notes on Wiltshire ... 229
„ at Rannoch in 1870 ... 81
„ during the past season, Captures of ... 136
„ from Britain, Descriptions of new species, &c., of ... 6
„ in Morayshire ... 10
„ „ North Devon, Captures of ... 108
„ near Lewisham, Captures of ... 12
„ „ Maidstone, Captures of ... 155, 254
„ „ Manchester ... 107
„ on the shores of Loch Leven ... 81
Coptoderides from the Amazons, On the synonymy of certain ... 10
Cordulia metallica, Van der Lind., a Dragon-fly new to Britain, Occurrence of ... 38
Corizus Abutilon, Rossi, a species of Hemiptera-Heteroptera new to our lists, Note on the occurrence in Britain of ... 208
Corsican insects, Notes on some ... 225, 248
Corticaria new to the British lists, Note on a species of ... 274
Cossus ligniperda, Note on ... 18
Crambus fascelinellus (Pedriolellus), Description of the larva and habits of ... 160
Cryptocephalus Wasastjernii, Note on the food-plant of ... 154
Cryptophagus fumatus, Gyll., a species new to the British List, Capture in Northumberland of ... 35
„ Schmidtii, Note on further British examples of ... 229
„ Waterhousei, Rye, Note on ... 274
Cynipidæ, &c., Note on dimorphism of American ... 38
Cynips, Note on the flight of ... 255
„ longiventris, Hartig, a species new to the British List ... 108

PAGE
Dawson, Death of Rev. J. F. ... 216
Deilephila galii, Description of the larva of, with notes on its variation ... 231
„ „ Note on breeding ... 232
„ „ Some notes on the young larva of ... 187
„ „ at Alphington ... 85
„ „ „ Exeter ... 61
„ „ „ Helston ... 139
„ „ „ Leominster ... 86
„ „ „ Newcastle-on-Tyne ... 110
„ „ „ Perthshire (recorded as livornica, p. 139) ... 210
„ „ „ Stalybridge ... 86
„ „ in Fifeshire ... 139
„ „ „ Herefordshire ... 86
„ „ „ Suffolk ... 86
„ „ near Derby ... 85
„ „ „ Exeter ... 110
„ „ „ Kilmarnock ... 111
„ „ „ Perth ... 110
„ „ „ Plymouth ... 158
„ „ „ Stroud ... 110
„ livornica, Description of the larva of, with notes on variation ... 99
„ „ at Birmingham ... 40
„ „ „ Dartmouth ... 60
„ „ „ Folkstone ... 40
„ „ „ Glanville's Wootton ... 139
„ „ „ Perthshire (error, this was galii, see p. 210) ... 139
„ „ „ Teignmouth ... 40
„ „ „ Waltham Abbey ... 40
„ „ in Dorsetshire ... 40
„ „ „ Gloucestershire ... 61
„ „ „ South Wales ... 40
„ „ near Exeter ... 110
„ „ „ Kilkenny ... 61
„ „ „ Maidstone ... 110
„ „ „ Plymouth ... 110, 158
Depressaria granulosella, Note on ... 159
„ pallorella, &c., in Sussex ... 41
Dianthœcia irregularis (echii) bred in England ... 61
Dicranura bicuspis, &c., at Leominster, Capture of ... 16
Dimorphism of American Cynipidæ, &c., Note on ... 38
Diurnal Lepidoptera from Madagascar, Descriptions of new species of ... 30
„ „ „ Chontales, Nicaragua, and of one from Minas Geraes, Descriptions of five new species of ... 3
Donacia comari (aquatica, Wat. Cat.), Note on ... 59
Double-broods of Thyamis, Note on possible ... 207
Drachenfels, Four days at the ... 174
„ Note on galls from the ... 254
Drilus flavescens ♀, Note on ... 59
Dryops femorata near Bristol ... 230

PAGE
Early appearance of Acronycta aceris 17
„ butterflies 41
Egg, What aid does the form of the Lepidopterous, afford, towards determining the position of certain species? 230
„ and young larva of Thecla rubi, Notes on the... 232
Elachista serricornis, Capture of 188
Entomological Society of London, Proceedings of the 21, 44, 66, 164, 188, 216, 239, 263, 283
„ „ , Haggerston, Proceedings of the 162, 237, 282
„ „ , Newcastle-on-Tyne 238
Erebia Medea (Blandina), Descriptions of the transformations of 64
Eros, Duration of the larval state in 207
Eudorea atomalis at Witherslack 41
Eupithecia, Notes on the genus 213
„ campanulata, Food-plants of 143
„ consignata and other Lepidoptera at Norwich 158
„ irriguata, Description of the larva of 14
„ togata in Perthshire 158
Eupœcilia Degreyana, Notes on the habits and food-plants of 158
Exapate gelatella on Rhamnus catharticus, Larvæ of 188

Fen Lepidoptera, Stray notes on the 277
Feronia (Pterostichus) puncticeps and pauciseta, Thoms., Observations on 228

Gall-midges, Note on leaf-folding 88
Galls from the Drachenfels, Note on 254
Gelechia, as sub-divided by Heinemann, Remarks on the genus 165
Geometer, A new British 282
Gonoptera libatrix, Larvæ of 117
Gynandromorphism in a Trichopterous insect, On a singular instance of partial ... 19

Hadena assimilis, Capture of 255
Halias prasinana, On the sound said to be produced by 231
Haliday, Death of A. H. 66, 91
Halobates, Notes on the Hemipterous genus 208
Haward, Death of Alfred 66
Hemiptera, Descriptions of two species of, new to the British lists, and notice of a third... 156
„ -Heteroptera during 1869 and 1870, Notes on captures of 184
„ -Homoptera, On certain British... ... ... 22, 67, 118, 146, 190, 240, 270
Hepialus velleda, Descriptions of the transformations of 84
„ „ near Maidenhead 61
Hesperidæ in the collection of the British Museum, The genera of 55, 92
„ , Remarks upon the classification of the 265
Homalota algæ, Hardy, Note on 136
Homalium brevicorne, Er., and H. gracilicorne, Fairm., Observations on ... 153
„ Heerii, Observations on 153
Homœosoma nebulella, Difficulty of rearing Opadia funebrana and 257
„ saxicola, Vaughan, Note on the food-plant of 160, 231
Horton, Death of Rev. Edward 215
Hybernating larvæ, Effect of the past winter upon 17
„ „ of Bombyx rubi, On the treatment of the 143

PAGE
Hybernation of tree-feeding Lepidopterous larvæ, On the ... 276
Hydnobius Perrisii near Gateshead-on-Tyne, Capture of ... 275
Hydrochus parumoculatus of Hardy, Note on the ... 35
Hydroporus, Alterations in nomenclature of ... 205
Hypsipetes impluviata, Description of the larva of ... 42

Indian Coleoptera, Note on a habit of certain ... 59
Insects from the neighbourhood of the Cheviot Hills, On a collection of ... 182
„ of Strathglass, Inverness-shire, Notes on the ... 45

Jumping May-buds ... 282

Lacordaire, Death of Professor ... 89
Lamproplax Sharpi, D. & S., Capture of, in the South of England ... 157
Larva and habits of Crambus fascelinellus (Pedriolellus), Description of the ... 160
„ of Acronycta myricæ, Description of the ... 83
„ „ Deilephila galii, Description of the, with notes on its variation ... 123
„ „ „ „ Some notes on the young ... 187
„ „ „ livornica, Description (with notes on variation) of the ... 99
„ „ Eupithecia irriguata, Description of the ... 14
„ „ Hypsipetes impluviata, Description of the ... 42
„ „ Miana arcuosa, Description of the ... 260
„ „ „ „ Note on the ... 88
„ „ Pempelia formosa, Description of the ... 14
„ „ Scoparia muralis, Description of the ... 13
„ „ Thecla rubi, Notes on the egg and young ... 232
„ „ Tipula oleracea, Linn. (crane-fly), injurious to Rye-grass, The ... 60
„ „ Vanessa Antiopa ... 109
Larvæ of Bombyx rubi, On the treatment of the hybernating ... 143
„ „ Chesias spartiata and obliquaria, Comparative descriptions of the ... 260
„ „ Exapate gelatella on Rhamnus catharticus ... 188
„ „ Gonoptera libatrix ... 117
Latrodectus malmignatus, Walck., Note on ... 236
Leaf-folding gall-midges, Note on ... 88
Lederer, Death of Julius ... 19
Lemiodes pulveralis, Capture of ... 86
„ „ and other Lepidoptera at Ranworth ... 111
Lepidoptera, Captures of, near Battle during 1870, arranged chronologically ... 214
„ „ „ „ Lewes „ „ „ „ ... 213
„ „ „ at Deal ... 137
„ at Guestling in 1870 ... 277
„ „ Ranworth, Lemiodes pulveralis and other ... 111
„ „ Southport, Captures of larvæ of ... 17
„ „ Witherslack, Captures of ... 62, 63
„ in 1870, Captures of ... 87
„ „ Carmarthenshire, Captures of ... 233
„ Fen, Stray notes on the ... 277
„ near Bury St. Edmunds, Captures of ... 162
„ „ Huddersfield, &c., Captures of ... 234
„ „ Norwich, Captures of ... 235
„ „ Perth in 1870, Captures of ... 140
„ „ York, Captures, &c., of ... 161, 256
„ of Braemar, Notes on the ... 113

PAGE
(Lepidoptera of) Brandon, Notes on the ... 197
„ „ Humphrey Head and other localities in Lancashire, Note on the ... 87
„ Spring, at Leominster ... 277
Leucania albipuncta at Folkstone ... 87, 111
„ „, Captures of several examples of ... 139
„ vitellina at Torquay ... 212
Luperina cæspitis at Eltham ... 158
Lycæna Alexis deceived ... 61
„ Alsus, Transformations of ... 186

Mantispa, On the metamorphoses of ... 77
May-buds, Jumping ... 282
Mecinus and Baridius, Note on the œconomy of ... 81
Meligethes, Notes on ... 156
Melissoblaptes cephalonica in London ... 112
Melöe new to Britain, Occurrence near Cirencester of a species of ... 140
Miana arcuosa, Description of the larva of ... 260
„ „ Note on the larva of ... 88
Migration to Britain of Acridium peregrinum, a locust new to the European Fauna, Remarks on the recent ... 1
„ of White Butterflies ... 18
Mimæseoptilus aridus, Note on ... 88
Moth-trap, without the aid of light, A new ... 276

Neuroterus ostreus, Hartig, Occurrence in Britain of ... 209
Noctua baja paired with Leucania pallens ... 88
„ sobrina, Capture of ... 277
Noctuidæ in Morayshire in 1870, Notes on captures of ... 140
Nonagri elymi at South Shields, Occurrence of ... 112
Northumberland and Durham, A Catalogue of the Insects of (Revision of Coleoptera, by T. J. Bold): Review ... 237
Nothris verbascella, Notes on ... 160
Notodonta tritophus near Exeter, Suspected occurrence of ... 113

Oak-gall, Note on an ... 210
Odynerus spinipes, Further note on the œconomy of Chrysides parasitic on ... 250
Oncomera femorata at Silverdale, near Lancaster ... 182
Opadia funebrana, Difficulty of rearing, and Homœosoma nebulella ... 257
Opilus mollis and Callidium variabile at "sugar," Capture of ... 156
Orgyia antiqua male attracted by female O. gonostigma ... 117

Packard's Guide to the Study of Insects: Review ... 20
Pempelia formosa, Description of the larva of ... 14
„ obductella, F. R., a species new to Britain, Occurrence of ... 85
Peronea comariana, proteana, and potentillana, Notes on ... 233
„ potentillana, Cooke (comariana, Zeller?), Note on ... 41
Perthshire Society of Natural Science for Session 1869–70, Proceedings of the: Review ... 214
Philonthus xantholoma, On a variety of ... 181
Phycidæ, Descriptions of three new species of (from Britain), new to science ... 130
Phytophaga, Note on the earlier stages of Scotch ... 108

PAGE
Phytoptus, A correction concerning the genus ... 144
Pieris brassicæ, Late larvæ of ... 185
„ Daplidice in Epping Forest, Occurrence of ... 109
Pissodes piniphilus at Sunderland, Capture of ... 275
Platychirus, On the British species of... 127
Platypus cylindrus, Fab., On the habits of ...103, 132
Platysamia Cecropia, Linn., Note on ... 81
Plusia acuta, Walker, Capture in Britain of ... 138
„ ni at Penzance, Occurrence of ... 188
Polyommatus phlœas, Variety of ... 110
Ptenidium intermedium, Wankowiez, Note on ... 152
„ new to the British list, Note on a species of ... 152
Ptilophora plumigera, Life-history of... 210

Scoparia basistrigalis near York, Occurrence of ... 86
„ muralis, Description of the larva of ... 13
„ Zelleri and Sesia ichneumoniformis at Wolverton ... 86
Scottish Naturalist and Journal of the Perthshire Society of Natural History; edited by Dr. Buchanan White: Review ... 215
Scydmænus (Eumicrus) rufus, Müll. & Kunze, a species new to the British lists, Note on ... 273
Second broods in single-brooded Lepidoptera, Notes on occasional ... 18
Sesia ichneumoniformis at Wolverton, Scoparia Zelleri and ... 86
„ philanthiformis in Scotland ... 41
Sialis in Chili, On the occurrence of the Neuropterous genus... 145
Smerinthus ocellatus in pupa two years ... 61
„ populi, Abnormal appearance of ... 232
Sound said to be produced by Halias prasinana, On the ... 231
Sphinx convolvuli, Notes on... 139
Staphylinidæ, Description of a new genus and species of (from South Australia) 217
Staudinger's visit to England, Postponement of Dr. ... 66
Stenocephalus agilis in South Wales ... 157
Strophosomus hirtus, Schön., Walt., Capture of ... 37
Synonymic notes on some species of Cecidomyia ... 39
"Synopsis Coleopterorum Europæ et confinium anno 1868 descriptorum," by G. R. Crotch, M.A.: Review ... 236
Syrphidæ, Additions and corrections to the list of British, with a description of one species new to science ... 200

Tapinostola elymi at Cleethorpes ... 140
Teichobia Verhuellella feeding on Asplenium trichomanes ... 235
"The Fly," and "The Flea" ... 36
"The Honey Bee," its natural history, physiology, and management, by Dr. Bevan; revised, enlarged, and illustrated by W. A. Munn, F.R.H.S., &c.: Review ... 262
Thecla rubi, Notes on the egg and young larva of ... 232
Thomson's "Opuscula Entomologica," Fascc. i and ii, Analysis of ... 204
Thyamis, Note on possible double broods of ... 207
Tipula oleracea, Linn. (crane-fly), injurious to Rye-grass, The larva of ... 60
Tomicus bicolor, Hbst., Capture in Britain of ... 107
Tortrix new to Britain, Capture of a ... 255

PAGE
Trachyphlœus myrmecophilus, Seidlitz, Note on the occurrence in Britain of, with observations on a second British species of Cathormiocerus, and on the value of that genus 149
"Transactions of the Norfolk and Norwich Naturalists' Society, 1869—70:" Review 21
Transformations of Argynnis Selene, Description of the 114
„ „ Hepialus velleda, Description of the 84
„ „ Lycæna Alsus 186
Tree-feeding Lepidopterous larvæ, On the hybernation of 276
Trichoptera of Zetterstedt's "Insecta Lapronica," in connection with the nomenclature of British species, note on 281
Triphæna subsequa in Gloucestershire 212
Triplax Lacordairii at Darenth Wood, Re-occurrence of 38
Trogophlœus bilineatus, Steph., Note on 81
„ foveolatus, Sahlb., Note on 153, 182

Vanessa Antiopa, Larva of 109
„ „ in Suffolk, Capture of 139
„ „ near Rochester, Capture of 109
Varieties of British Coleoptera, Note on 36
Variety in the egg of Cerura vinula 117
„ of Chelonia caja 143
„ „ Philonthus xantholoma, On a 181
„ „ Polyommatus phlœas 110
"Verzeichniss der Schmetterlinge der Umgegend von Halle an der Saale," by A. Stange: Review 144

Windermere, A day at 62
Wing-nerves, Note on the nomenclature of, and on the importance of the abdominal appendages in specific determination 43

Xylina conformis, Further specimens of 188
„ Zinckenii at Darenth, Capture of 140
Xylomyges conspicillaris in Worcestershire 17

Yarmouth Denes, Under the sand on 63

INDEX OF SUBJECTS NOTICED IN THE PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF LONDON.

PAGE
Acari on pear-trees ... 67
Acidalia strigaria ... 189
Ægosoma scabricorne, Larvæ of ... 189
Amazons, Cerambycidæ of the ... 67, 164
Anniversary Meeting ... 239
Anobium paniceum eating Cayenne-pepper ... 164
Apterocyclus honoluluensis from the Sandwich Islands ... 283
Argynnis Niobe and Adippe, Identity or distinctness of ... 44
Arrangement of Macro-Lepidoptera ... 283
Asilus feeding upon grasshoppers ... 189
Ateuchus semipunctatus, Living specimen of ... 44
Atlantic Coleoptera, Additions to ... 283

Bombyx Cynthia and Yama-Mai, Hybrid between ... 263
„ Mori with larval head ... 263
British Lepidoptera, Varieties of ... 216
Butterflies from Ecuador ... 21
„ „ Kinsembo ... 67
„ „ Madagascar ... 264
„ , Nature-printed ... 66
„ of Basuto Land ... 194

Calopterygidæ, New species of ... 21
Caradrina cubicularis and Senta ulvæ in copula ... 164
Chinese Lepidoptera ... 21
Chlorops lineata at Cambridge ... 164, 283
Coccus on Cypripedium ... 239
„ „ Lemons ... 239
Coleoptera, Genera of, studied chronologically ... 44
„ , New species of British ... 189
Copridæ, New species of ... 21
Corixa destructive to ova of fishes in India ... 239
Curculionidæ, New species of Australian ... 21, 164
Cynipidæ, Galls of ... 164, 189

Deilephila galii and livornica, Figures of larvæ of ... 164
Dianthœcia, British species of ... 66
Dispersal of insects by atmospheric agencies ... 264

Ephemeridæ, Monograph of the ... 189
Eresus ctenizoides, Living specimen of, from Greece ... 189

Fumea reticella, and cases ... 189

Galls from Morocco ... 239
„ on Ammophila arundinacea ... 67
„ „ Campanula rotundifolium ... 264

PAGE
(Galls on) Carex ... 283
„ „ Juniper ... 44
Gynandromorphism in Aculeate Hymenoptera ... 283
„ „ Brachycentrus subnubilus ... 44

Hemiptera-Heteroptera, New species of British ... 189
Honey-Bee, Habits of ... 44
Hornet barking ash-branches ... 264
Hymenoptera from Egypt ... 67
„ „ Japan ... 21

Immature sexuality in insects ... 264

Kinsembo, Insects from ... 44

Larvæ, Relationship between colour and edibility in ... 67
Lepidoptera from Fantee ... 216
„ „ Perthshire ... 239
„ , Malformations in antennæ of ... 264
„ , New species of diurnal ... 216
Lepisma, Habits of ... 283
Leucania albipuncta from Folkestone ... 164
Longicornia from North India ... 189

Macrotoma heros ... 164
Melöe maialis impaled upon Opuntia ... 164
„ rugosus from Essex ... 164
Mimicry in spiders and caterpillars ... 67

Natal, Insects from ... 144
Nonagria brevilinea from Horning Fen ... 164

Observatory Hives, First notice of ... 264
Oxypoda, British species of ... 264
Oxyptilus lætus from Norfolk ... 66
Oxytelus fulvipes, new to Britain ... 239

Parasites on birds, Eggs of ... 239
„ „ peacock ... 264
Phlœotribus oleæ from Halifax ... 189
Phora in wasps' nests ... 189
Phycis obductella ... 189
Pierinæ, New species of ... 239
Pipiza noctiluca, Substance adhering to head of ... 283
Plusia interrogationis in Sussex ... 216

Rhynchium brunneum obliterating inscriptions in Egypt ... 264

Sagra, Habits of ... 67

Tangiers, Insects from ... 67
Trachyphlœus laticollis, new to Britain ... 21

SPECIAL INDEX.

COLEOPTERA.

PAGE

- Abaris notiophiloides 220
  - picipes 219
  - robusta 219
  - striolata 220
  - tachypoides 220
- Agabus Solieri 52
- Aleochara cuniculorum 155
  - maculata 136
  - ruficornis, ♂ 80
  - villosa (?) 275
- Amara indivisa.. 229
- Anchomenus versutus (var. lugubris, Dufts.)...................... 86
- Anisotoma ciliaris 154
  - similata 8
- Anisoxya fuscula 137
- Anobium denticolle 137
- Aspidophorus orbiculatus 80
- Athous undulatus 81

- Bagous inceratus 154
  - lutulosus 154
- Baridius laticollis 81
  - scolopaceus 107, 136
- Bembidium anglicanum 12
  - obliquum 155
  - 4-pustulatum 35
  - Sturmii 155
- Bledius fuscipes.................. 10
- Bolitobius inclinans 107
- Brachonyx indigena 10
- Bythinus glabratus 33

- Callidium variabile at sugar........ 156
- Calophæna viridipennis............ 221
- Carida flexuosa 81
- Cassida hemisphærica 137
  - sanguinolenta (unicolorous var.) 137
- Cathaicus, g. n. 32
  - Swinhoei 33
- Cathormiocerus, Observations on.... 151
- Ceuthorhynchideus frontalis 136

PAGE

- Ceuthorhynchus punctiger 107
  - sulcicollis, Reflection (?) in 36
  - vicinus, Bris. (= triangulum, Märk.)... 36
- Choleva longula 183
- Coccinella 16-guttata, Transformations of 108
- Colon denticulatum 9
- Conopalpus Vigorsii 80
- Copterides, Synonymy of certain Amazonian 10
- Corticaria obscura (?) 274
- Corylophus sublævipennis 155
- Cryptocephalus 10-punctatus 80
  - punctiger 80
  - querceti 80
  - Wasastjernii 154
- Cryptophagus fumatus 35
  - Schmidtii 206
  - validus 9
  - Waterhousei 275
- Ctenodactyla depressa 222
  - foveata.............. 221
  - glabrata 221

- Dasytes oculatus 206
- Donacia comari 59
- Drilus flavescens, ♀ 59
- Dyschirius angustatus 154
- Dytiscus lapponicus 52

- Epuræa neglecta 11
- Eros affinis, Larval state of 207
- Euplectus ambiguus 12

- Feronia puncticeps and pauciseta .. 228

- Gymnusa brevicollis............11, 107

- Haliplus mucronatus 137
- Helluomorpha glabrata............ 223
  - Janus 223
  - linearis 224
  - oculea.............. 223
  - subrostrata.......... 224

PAGE

- Homalium brevicorne 153, 183
  - gracilicorne 153
  - Heerii 152
- Homalota algæ 106
  - crassicornis 107
  - Sharpi 6
  - subtilissima 12
  - sylvicola 107
- Hynobius Perrisii 275
- Hydrobius fuscipes (var. chalconotus, Leach; æneus, Sol.) 36
  - (var. subrotundus, Steph. ?) 36
- Hydroporus, Changes in nomenclature of 205
  - griseostriatus 52
  - incognitus 52
  - unistriatus 154
- Hyperaspis reppensis at Rannoch 81

- Læmophlœus bimaculatus 155
  - pusillus 205
- Larinus ebeneus 230
- Lathridius consimilis (?) 80
  - testaceus 80
- Leptotrachelus bifasciatus 222
  - cruciatus 222
- Liotachys, g. n. 267
  - antennatus 268

- Macronychus (?) parumoculatus 35
- Malthodes misellus 107
- Mecinus circulatus 154
  - collaris 81
- Megapenthes tibialis 137
- Meligethes, Notes on 156
- Melöe decorus (?) 149
- Mordella fasciata 156
- Mordellistena pusilla 136
- Mycetophagus fulvicollis 81
- Mycetoporus lucidus 12, 155

- Oncomera femorata in Lancashire 182
  - near Bristol 230
- Opilus mollis at sugar 156
- Orchestes scutellaris 108
- Oxynoptilus cuspidatus 154
- Oxypoda rupicola 183

PAGE

- Pachyrinus 4-nodosus 12
- Pediacus depressus 205
- Pericompsus grossepunctatus 245
  - immaculatus 246
  - incisus 246
  - metallicus 247
  - picticornis 245
  - simplex 246
- Philonthus cicatricosus 155
  - xantholoma (var.) 181
- Phlœophilus Edwardsii 254
- Phratora cavifrons 52
- Phyllotreta sinuata 137
- Phytœcia cylindrica 136
- Pissodes notatus near Manchester 80
  - piniphilus 275
- Platypus cylindrus, On the habits of 103, 132
- Plegoderus dissectus 80
- Pleuracanthus ebeninus 224
- Prionocyphon serricornis 80
- Pselaphus dresdensis 230
- Psylliodes attenuatus (the 'Hop flea') 36
- Ptenidium intermedium (Vankoviezii, Matth.) 152
- Pyrochroa pectinicornis 52

- Saprinus punctulatus 108
- Sartallus, g. n. 217
  - signatus 217
- Scolytus Ratzeburgii 81
- Scraptia fuscula 80
- Scydmænus rufus 273
- Sibynia sodalis 154
- Silpha dispar 81
- Simplocaria metallica 59
- Sphærites glabratus 183
- Sphindus dubius 80
- Stenostola ferrea at Portsea 155
- Stenus brevicollis 183, 184
  - oscillator 7
- Strophosomus hirtus (= Platytarsus setulosus) 37

- Tachys æneopiceus 268
  - dromioides 269
  - fraterculus 268
  - platyderus 268

PAGE
- (Tachys) Squiresi 269
  - sulcipennis 269
- Teflus Hamiltonii 244
- Thinobius longipennis 12
- Thyamis (? double-brooded) 207
  - cerina 207
  - rutila 206
- Tomicus bicolor 107
- Trachyphlœus myrmecophilus 149
- Trichopteryx punctatissima 59
  - subænea 59
- Trimium brevipenne 207
- Triplax Lacordairii 38
- Trogophlœus bilineatus, Note on synonymy of.. 181, 205
  - foveolatus 153, 182
  - spinicollis 8

- Xantholinus distans 9
- Xystosomus elaphrinus 267
  - Grutii 248
  - hilaris 266
  - ovatulus 247
  - sculpticollis 266
  - strigosus 248

- Zeugophora Turneri 52

DIPTERA.

- Cecidomyia dorycnii 76
  - floricola 40
  - millefolii 39
  - terminalis 89
  - veronicæ 39
- Chilosia longula 202
  - nebulosa 201

- Didea alneti 200

- Eumerus litoralis (= sabulonum) 203

- Helophilus frutetorum 202

- Melanostoma barbifrons 201

- Orthoneura brevicornis 203

- Pelecocera tricincta 200
- Pipiza vana (= noctiluca, ♂) 203

PAGE
- Platychirus albimanus 128
  - angustatus 129
  - clypeatus 128
  - fulviventris 129
  - immarginatus 129
  - manicatus 127
  - melanopsis 127
  - peltatus 128
  - podagratus 129
  - scambus 129
  - scutatus 128
- Plocota apiformis 203

- Syrphus cinctus (?) 201
  - seleniticus 200
  - venustus 201

- Tipula oleracea 60

- Xylota abiens 202
  - florum 203

HEMIPTERA-HETEROPTERA.

- Acanthosoma grisea 53

- Corizus Abutilon 208

- Hadrodema pinastri 156
- Halobates, Notes on 208

- Lamproplax Sharpi at Wimbledon 157

- Plociomerus luridus 156
- Psallus (?) argyrotrichus 52
  - Whitei 52

- Salda arenicola 157
- Stenocephalus agilis 157

HEMIPTERA-HOMOPTERA.

- Achorotile albosignata 195
- Aphrophora alni 271
  - salicis 272
- Asiraca clavicornis 24

- Cixius brachycranus 121, 148
  - contaminatus 121, 160
  - cunicularius 121, 122
  - intermedius 121, 147

PAGE
(Cixius) nervosus 121, 146
similis 121, 192
simplex 121, 191
stigmaticus 122, 191

Delphax pulchella 24
Dicranotropis hamata 73

Lepyronia coleoptrata 270
Liburnia adela 26
albofimbriata 27
Boldi 26, 68
capnodes 26, 69
cognata 28
collina 26
Dalei 28, 72
denticauda 28
discolor 27
distincta 26, 53
Douglasi 29, 72
elegantula 26
exigua 28
extrusa 194
Fieberi 27, 70
forcipata 27
fuscovittata 25
guttula 25
leptosoma 27
limbata 29
lineata 29
lineola 25
longipennis 25
lugubrina 28
melanopachys 26, 70
mesomelas 29
neglecta 27
niveimarginata 27, 71
notula 25
obscurella 28
pallidula 193
pellucida 27
pullula 28
Scotti 25, 67
Signoreti 26, 69
smaragdula 25
sordidula 26
speciosa 27

PAGE
(Liburnia) striatella 27
uncinata 28
unicolor 25
venosa 26

Oliarus leporinus 120
pallidus 119

Ptyelus campestris 242, 243
exclamationis 242
lineatus 242
spumarius 242

Stiroma affinis 73
albomarginata 74
mœsta 74
nasalis 73
pteridis 73

Ulopa trivia 272
obtecta 272

HYMENOPTERA.

Andricus curvator 39
inflator 157

Callimome devonensis 60
dorycnicola 77
Chrysis neglecta, Œconomy of 250
Cynipidæ, On dimorphism of American 38
Cynips, Flight of 255
longiventris 108

Neuroterus ostreus 209

LEPIDOPTERA.

Acidalia ochrata 138
rubricata 158, 162, 200
Acronycta aceris 17
alni 41
menyanthedis 88
myricæ 49
" , Larva of 83
Agrophila sulphuralis 86, 162, 200
Agrotis agathina 141
præcox 141
Aleucis pictaria 41

PAGE

- Amphisbatis incongruella 15
- Anerastia lotella 64, 197
- Anticlea sinuata 86, 162
- Aporophila australis 138
- Argynnis Euphrosyne 109
    - Lathonia 85
    - Selene, Larva of 114
- Aricoris Cleomedes 4

- Batrachedra pinicolella 235
- Boarmia ruboraria, Error as to 277
- Bombyx callunæ 17
    - rubi, Larva of 143
- Butalis incongruella 15
    - Scopolella 175

- Camptogramma fluviata 279
- Catocala fraxini 111
- Catoptria aspidiscana 62
- Cerigo Cytherea 141
- Cerostoma persicella 177
- Cerura vinula 117
- Chelonia caja, Variety of 143
- Chesias obliquaria 86, 140, 162
    - „ , Larva of 260
    - spartiata, Larva of 260
- Chœrocampa Celerio 85
    - nerii 41
    - porcellus 63
- Cirrhædia xerampelina 140
- Cloantha solidaginis 112, 140
- Coleophora salinella 87
    - therinella 237
- Cossus ligniperda 18
- Crambus fascelinellus 64
    - (Pedriolellus), Larva of 160
    - margaritellus 51
- Crymodes exulis 49, 255

- Dasydia obfuscata 48, 140
- Dasypolia Templi 235
- Deilephila galii 61, 85, 86, 110, 111, 123, 139, 158, 187, 210, 213, 232
    - „ , Larva of 123, 187
    - livornica 40, 60, 61, 99, 110, 139, 158, 233
    - „ , Larva of 99
- Depressaria carduella 63

PAGE

- (Depressaria) ciniflonella 51
    - granulosella 159
    - pallorella 41
- Dianthœcia Barrettii 77
    - cæsia 88
    - echii bred 61
    - irregularis 162
- Diasemia literalis 234
- Dicranura bicuspis 16
- Dicrorampha flavidorsana 87

- Elachista serricornis 188
    - triseriatella 87
- Emesis Lacrines 5
- Endromis versicolora 140
- Ennomos tiliaria 48
- Erebia Medea (Blandina), Larva of 64
- Eucosmia undulata 87
- Eudorea atomalis 41
- Euperia fulvago 50, 142
- Eupithecia campanulata 143
    - consignata 16, 158, 163
    - irriguata 16
    - „ , Larva of 14
    - togata 158
- Eupæcilia ambiguella 177
    - anthemidana 200
    - citrella 51
    - curvistrigana 87
    - Degreyana 158
    - griseana 112
- Exapate gelatella, Larva of 188

- Gluphisia crenata 87
- Glyphipteryx Bergstræssella 177, 178
- Gonoptera libatrix, Larvæ of 117

- Hadena assimilis 255
- Halias prasinana 231
- Heliothis marginata 88, 139, 140, 142
- Hepialus velleda 61
    - „ , Larva of 84
- Homœosoma nebulella 257
    - saxicola 132, 160, 231
    - senecionis 131
- Hydrænomia Orcinus 58
- Hypsipetes impluviata, Larva of 42

PAGE
Lemiodes pulveralis 86, 111
Lemonias Lasthenes 5
Leucania albipuncta........87, 111, 139
pallens 88
putrescens 234
vitellina 212
Lithocolletis Amyotella............ 62
Lithosia griseola 17
stramineola.............. 17
Lithostege griseata............162, 200
Luperina cæspitis 158
Lycæna Alexis 61
Alsus, Larva of 186
Lythria purpuraria................ 162

Melissoblaptes cephalonica 112
Miana arcuosa, Larva of 86, 260
Micropteryx mansuetella 62
Mimæseoptilus aridus 88

Necyria Beltiana.................. 3
Nemoria viridata 62, 63
Nepticula betulicola 51
Noctua baja...................... 88
depuncta..............140, 141
sobrina 277
Nonagria elymi 112, 140
Nothris verbascella 160
Notodonta trilophus 113
Nymphidium Ethelinda............ 6
Nyssia lapponaria................ 282

Œcophora grandis................ 178
Lambdella 87, 175
Opadia funebrana..............87, 257
Orygia antiqua 117
fascelina 17, 48
gonostigma 117
Ornix Loganella.................. 63
Orthosia suspecta 140
Oxyptilus lætus 200

Pachetra leucophæa 177
Pamplusia monticolana............ 51
Pardaleodes Edipus 97
Pempelia formosa, Larva of........ 14
obductella............85, 63

PAGE
Peronea comariana 41, 233
potentillana 41, 233
proteana 233
Phibalapteryx lapidata 48
Phlogophora empyrea 214
Phycis subornatella 140
Pieris brassicæ 185
Daplidice 109, 163
Plastingia flavescens 95
Platypteryx lacertula in April 277
Plusia acuta 138
ni 188
Polyommatus Eurydice............ 259
phlœas, Variety of.... 116
Pterophorus plagiodactylus 63
Ptilophora plumigera, Larva of 210

Rhodophæa marmorea 87

Satyrus Mæra.................... 178
Scardia choragella................ 163
Sciaphila perterana 87
Scoparia basistrigalis.............. 86
muralis, Larva of 13
Zelleri 86
Scopula alpinalis 50
decrepitalis.............. 50
Sericoris irriguana................ 255
Sesia chrysidiformis 163
ichneumoniformis............ 86
philanthiformis.............. 41
Smerinthus ocellatus.. 61
populi........... 232
Spathilepia Clonius 57
Sphinx convolvuli 139, 213
Stilbia anomala 50
Symmachia Cleonyma 4

Tæniocampa opima 16, 256
Tapinostola elymi 112, 140
Teichobia Verhuellella 235
Theola rubi, Larva of.............. 232
Tinagma stanneellum 62
Tinea imella 200
Trachea atriplicis 144
Trachonitis (?) Pryerella 130
Triphæna subsequa............141, 212

Udranomia Orcinus 58

PAGE
Vanessa Antiopa.............109, 139
„ , Larva of 109
Xylina conformis 188
Zinckenii................. 140
Xylomyges conspicillaris 17

NEUROPTERA (*in the Linnean sense*).

Brachycentrus subnubilus partially gynandromorphous 19
Cordulia metallica 38, 53
PAGE
Limnophilus pavidus 53
Mantispa, Metamophoses of......... .. 77
Phryganea obsoleta 53
Sialis chilensis............................ 145
Zetterstedt's Trichoptera ....

ORTHOPTERA.

Acridium peregrinum 1

INDEX TO CONTRIBUTORS.

PAGE
Anstay, Rev. H., M.A. 139
Barrett, C. G. 63, 111, 158, 159, 160, 197, 235, 257, 277
Bates, H. W., F.Z.S., &c...32, 218, 244, 266
Batty, J. 88
Baxendale, D.......................... 112
Bloomfield, Rev. E. N., M.A ..61, 86, 139, 162, 277
Bold, T. J. 35, 136, 275
Bond, F., F.Z.S. 40, 86
Boyd, W. C............................. 40
Brauer, Friedrich 77
Bristow, Rev. E., M.A. 61
Broadhurst, W. 80
Brown, Edwin.......................... 1
Bruand, Rev. G., M.A. 110
Buckler, W. ...13, 14, 42, 64, 83, 84, 114, 123, 160, 210, 232, 260
Butler, A. G., F.Z.S., &c..55, 59, 92, 265
Campbell, C. 140
Carrington, T. J.....................117, 213
Champion, G. C. 12, 38, 107, 136, 182, 184, 208
Chapman, T. Algernon, M.D...18, 81, 103, 132, 250
Clarke, A. H. 61
PAGE
Coles, S. H. 60, 86
Cooke, B.................................. 41
Cooke, N. 255
Cooke, T.................................. 86
Cottam, Arthur 109
Courtice, J. L. 41
Crewe, Rev. H. Harpur, M.A. 143
Crompton, Rev. J., M.A. 18
Crotch, G. R., M.A. 154
Curzon, E. Roper 157
Dale, J. C., M.A., F.L.S., &c. 139
Dietze, C................................. 14
D'Orville, H. 85
Douglas, J. W. 43, 137
Doward, C. R............................ 17
Eales, C. 112
Enock, F...........................40, 41
Fletcher, James 109
Fletcher, J. E. 188
Gorham, Rev. H. S...35, 36, 136, 155, 254
Gregson, C. S..................18, 62, 88
Greville, E. & H. 86, 110

PAGE
Hamilton, J. 110
Hardy, John 182
Hardy, John Ray 207
Harwood, W. H. 276
Hellins, Rev. J., M.A. 17, 53, 61, 99, 110, 113, 139, 158, 162, 186, 212, 232, 279
Hewitson, W. C., F.L.S. 3
Hislop, R. 10, 229
Hodgkinson, J. B. 41, 62, 87, 188
Hudd, A. E. 109, 230, 232
Hutchinson, T. 16, 86, 277

Jeffrey, W. R. 188
Jenner, J. H. A. 213, 214
Joliffe, D. 86
Jones, A. H. 158
Jordan, R. C. R., M.D. 117, 174
Jordan, W. R. H. 40

Kaye, Ernest 40, 233
Kidd, H. W. 210
Knaggs, H. G., M.D., F.L.S. 40, 117, 282

Lewis, W. A., M.A. 41

McLachlan, R., F.L.S. 19, 38, 145, 208, 281
McNab, Prof. W. R., M.D. 149
Marshall, Rev. T. A., M.A., F.L.S. 225, 236, 248
Mathew, G. F., R.N. 17
Matthews, Rev. A., M.A. 152
Meek, E. G. 41, 85, 87
Miller, J. C. 185
Moncreaff, H. 81, 154, 207
Moore, H. 138
Moore, J. 140
Morley, T. 107
Müller, Albert 36, 38, 39, 60, 61, 76, 88, 89, 108, 144, 157, 209, 230, 254
Murray, Rev. R. P., M.A. 258

Nolcken, Baron J. H. W. 233
Norman, G. 88, 140

PAGE
Pelerin, W. G. 37
Porritt, G. T. 17, 63, 110, 143, 234
Potter, J. 111
Prest, W. 86, 256
Pryer, H. 112

Robinson, W. Douglas 111, 187
Ruspini, F. O. 182
Rye, E. C. 6, 10, 33, 36, 59, 149, 152, 153, 157, 180, 205, 228, 229, 255, 273, 274

Saunders, E., F.L.S. 156
Scott, J. 22, 67, 118, 146, 190, 240, 270
Scott, J. F. 156
Sharp, D., M.B. 181, 204, 205, 217
Shaw, C. A. 276
Smith, F. 108
Somerville, Rev. J. E., B.D. 108
Southwell, T. 12
Stainton, H. T., F.R.S., &c. 15, 66, 109, 165
Stowell, Rev. H. A., M.A. 85
Sturt, W. T. 110
Swinton, A. H. 231
Syme, J. Boswell, LL.D., F.L.S. 139

Taylor, J. K. 10, 80
Thompson, W. 86
Todd, Rev. E. H., M.A. 61, 212
Traill, J. 88, 113

Ullyett, H. 111

Vaughan, Howard 87, 130, 138, 139, 160
Verrall, G. H. 127, 200

Ward, C. 30
Waterhouse, E. A. 81
White, F. Buchanan, M.D. 41, 45, 110, 139, 140, 210, 230, 231
Wilkinson, T. 152
Wilson, T. 161

LIST OF NEW GENERA AND SPECIES, &c., DESCRIBED IN THIS VOLUME.

COLEOPTERA.

GENERA.

PAGE
CATHAICUS, *H. W. Bates* ... 32
LIOTACHYS, „ ... 267
SARTALLUS, *Sharp* ... 217

SPECIES.

Abaris notiophiloides, *H. W. Bates (Ega)* ... 220
picipes, „ *(Amazons)* ... 219
robusta, „ „ ... 219
striolata, „ *(Ega)* ... 220
tachypoides, „ „ ... 220
Anisotoma similata, *Rye (England)* ... 8
Bythinus glabratus, „ „ ... 33
Calophæna viridipennis, *H. W. Bates (Amazons)* ... 221
Cathaicus Swinhoei, „ *(Pekin)* ... 33
Ctenodactyla depressa, „ *(Ega)* ... 222
foveata, „ „ ... 221
glabrata, „ *(Amazons)* ... 221
Helluomorpha glabrata, „ „ ... 223
Janus, „ *(Ega)* ... 223
linearis, „ „ ... 224
oculea, „ „ ... 223
subrostrata, „ „ ... 224
Homalota Sharpi, *Rye (England)* ... 6
Leptotrachelus bifasciatus, *H. W. Bates (Peru)* ... 222
cruciatus „ *(Ega)* ... 222
Liotachys antennatus, „ ...
Pericompsus grossepunctatus, „ *(Rio)* ... 245
immaculatus, „ *(Ega)* ... 246
incisus, „ *(Amazons)* ... 246
metallicus, „ *(Rio)* ... 247
picticornis, „ „ ... 245
simplex, „ *(S. Brazil)* ... 246
Pleuracanthus ebeninus, „ *(Ega)* ... 224
Sartallus signatus, *Sharp (S. Australia)* ... 217
Stenus oscillator, *Rye (England)* ... 7
Tachys æneopiceus, *H. W. Bates* (*Tapajos*) ... 268
dromioides, „ (*Amazons*) ... 269
fraterculus, „ „ ... 268
platyderus, „ „ ... 268
Squiresi, „ (*Rio*) ... 269
sulcipennis, „ (*Ega*) ... 269
Tefflus Hamiltonii, *H. W. Bates (Angola)* ... 244
Trogophlœus spinicollis, *Rye (England)* ... 8

PAGE
Xystosomus elaphrinus *H. W. Bates* (*Ega*) ... 267
Grutii, „ (*Rio*) ... 248
hilaris, „ (*Ega*) ... 266
ovatulus, „ (*Rio*) ... 247
sculpticollis „ (*Ega*) ... 266
strigosus, „ (*Rio*) ... 248

DIPTERA.

Cecidomyia dorycnii, *Müller (Mentone)* ... 76
Chilosia nebulosa, *Verrall (England)* ... 201

HEMIPTERA-HOMOPTERA.

Cixius brachycranus (*Fieb.*), *Scott (England)* ... 121, 148
intermedius „ „ „ ... 121, 147
Liburnia albofimbriata (? *Curtis*), *Scott* „ ... 27
Boldi, „ „ ... 26, 68
capnodes, „ „ ... 26, 69
Dalei, „ „ ... 28, 72
Douglasi (*Fieb.*), „ „ ... 29, 72
extrusa, „ „ ... 194
Fieberi, „ „ ... 27, 70
melanopachys, „ „ ... 26, 70
niveimarginata, „ „ ... 27, 71
Scotti (*Fieb.*), „ „ ... 25, 67
Signoreti, „ „ ... 26, 69

HYMENOPTERA.

Callimome dorycnicola, *Müller (Mentone)* ... 77

LEPIDOPTERA.

GENERA.
Hydrænomia, *Butler* (*script.* Udranomia) ... 58, 99
Pardaleodes, „ ... 96
Plastingia, „ ... 95
Spathilepia, „ ... 57

SPECIES.
Aricoris Cleomedes, *Hewitson (Nicaragua)* ... 4
Emesis Lacrines, „ „ ... 5
Erebia Ankaratra, *Ward (Madagascar)* ... 30
Rakoto, „ „ ... 30
Homœosoma saxicola, *Vaughan (Britain)* ... 132
senecionis, „ „ ... 131
Lemonias Lasthenes, *Hewitson (Nicaragua)* ... 5

PAGE
Mycalesis Ankova, *Ward* (*Madagascar*) ... 31
Avelona, „ „ ... 31
Iboina, „ „ ... 31
Vola, „ „ ... 31
Necyria Beltiana, *Hewitson* (*Nicaragua*) ... 3
Nymphidium Ethelinda, *Hewitson* (*Minas Geraes*) ... 6
Pieris Antsianaka, *Ward* (*Madagascar*) ... 30
Symmachia Cleonyma, *Hewitson* (*Nicaragua*) ... 4
Trachonitis (?) Pryerella, *Vaughan* (*London*) ... 130

NEUROPTERA.

Sialis chilensis, *McLachlan* (*Chili*) ... 145

ADDITIONS TO THE BRITISH INSECT FAUNA BROUGHT FORWARD IN THIS VOLUME.

COLEOPTERA.

PAGE
Aleochara maculata ... 136
„ villosa (?) ... 275
Anisotoma grandis (?) ... 180
oblonga (?) ... 180
similata ... 8
Baridius scolopaceus ... 107, 136
Bembidium 4-pustulatum ... 35
Bythinus glabratus ... 33
Cathormiocerus sp. ... 150
Colon denticulatum ... 9
Corticaria obscura (?) ... 274
Cryptophagus fumatus ... 35
Schmidtii ... 206, 229
validus (=fumatus, E. M. M., vi, p. 257,) nec. *Gyll.* 9
Homalota Sharpi ... 6
Melöe decorus (?) ... 149
Oxytelus fulvipes ... 239
Pediacus depressus ... 205
Phlœotribus oleœ (introduced) ... 189
Pissodes piniphilus „ ... 275
Ptenidium intermedium ... 152
Scydmænus rufus ... 273
? Simplocaria metallica ... 59
Stenus oscillator ... 7
Thyamis cerina ... 207
rutila ... 206
Tomicus bicolor ... 107
Trachyphlœus laticollis ... 21
myrmecophilus ... 149
PAGE
? Trichopteryx punctatissima ... 59
? subænea ... 59
Trogophlœus spinicollis ... 8
Xantholinus distans ... 9

DIPTERA.

GENERA.

PELECOCERA ... 200
PLOCOTA ... 203

SPECIES.

Cecidomyia floricola ... 40
Chilosia longula ... 202
nebulosa ... 201
Melanostoma barbifrons ... 201
Orthoneura brevicornis ... 203
Pelecocera tricincta ... 200
Platychirus angustatus ... 129
melanopsis ... 127
podagratus ... 129
scambus ... 129
Plocota apiformis ... 203
Syrphus seleniticus ... 200
Xylota abiens ... 202

HEMIPTERA-HETEROPTERA.

Corizus Abutilon ... 208
Hadrodema pinastri ... 156
Plociomerus luridus ... 156
Psallus (?) argyrotrichus ... 52
Salda arenicola ... 157

HEMIPTERA-HOMOPTERA.

GENUS.

PAGE

Achorotile ... 195

SPECIES.

Achorotile albosignata ... 195
Cixius brachycranus ... 121, 148
  intermedius ... 121, 147
  similis (= leporinus, *Marsh.*, nec *Panz.*) ... 121, 192
  simplex ... 122, 191
  stigmaticus (= musivus, *Marsh.*, nec *Germ.*) ... 122, 191
Liburnia adela ... 26
  (?) albofimbriata ... 27
  Boldi ... 26, 68
  capnodes ... 26, 69
  cognata ... 28
  Dalei ... 28, 72
  denticauda ... 28
  distincta ... 26, 53
  Douglasi ... 29, 72
  extrusa ... 194
  exigua ... 28
  Fieberi ... 27, 70
  forcipata ... 27
  fuscovittata ... 25
  melanopachys ... 26, 70
  mesomelas ... 29
  niveimarginata (=D. thoracicus, *Marsh.*, nec *Stål*) ... 27, 71
  obscurella ... 28
  pallidula ... 193
  pullula ... 28
  Scotti (=D. pallidulus, *Marsh.*, nec *Boh.*) ... 25, 67
  Signoreti ... 26, 69

PAGE

(Liburnia) smaragdula ... 25
  sordidula ... 26
  speciosa ... 27
  uncinata ... 28
  unicolor ... 25
  venosa ... 26
Oliarus leporinus ... 120
  pallidus (=leporinus, *Curt.*, nec *L.*) ... 119
Ptyelus campestris ... 242, 243
Stiroma affinis ... 73
  mœsta ... 74
Ulopa trivia ... 272

HYMENOPTERA.

Andricus curvator ... 39
  inflator ... 157
Cynips longiventris ... 108
Neuroterus ostreus ... 209

LEPIDOPTERA.

Acidalia ochrata ... 138
Homœosoma saxicola ... 132
  senecionis ... 131
Nyssia lapponaria ... 282
Pempelia obductella ... 85
Plusia acuta (not indigenous) ... 138
Sericoris irriguana ... 255
Trachonitis (?) Pryerella ... 130

NEUROPTERA.

Cordulia metallica ... 38, 53

ORTHOPTERA.

Acridium peregrinum (immigrant) ... 1

LARVÆ OF BRITISH LEPIDOPTERA DESCRIBED IN THIS VOLUME.

Acronycta myricæ, *W. Buckler* ... 83

Argynnis Selene, „ ... 114

Camptogramma fluviata, *Rev. J. Hellins* ... 279

Chesias obliquaria, *W. Buckler* ... 261

spartiata, „ ... 261

Crambus fascelinellus „ ... 160

Deilephila galii, „ ... 123

livornica, *Rev. J. Hellins* ... 99

Erebia Medea, *W. Buckler* ... 65

Eupithecia irriguata, *C. Dietze* ... 14

Hepialus velleda, *W. Buckler* ... 84

Hypsipetes impluviata, „ ... 42

Lycæna Alsus, *Rev. J. Hellins* ... 186

Miana arcuosa, *W. Buckler* ... 260

Pempelia formosa, „ ... 14

Ptilophora plumigera „ ... 211

Scoparia muralis, „ ... 13

REVIEWS.

PAGE

" A guide to the study of Insects."—A. S. Packard, Junr., M.D. ... 20

" Transactions of the Norfolk and Norwich Naturalists' Society, 1869—70" ... 21

" Verzeichniss der Schmetterlinge der Umgegend von Halle an der Saale."—A. Stange... 144

" Opuscula Entomologica," fascc. i and ii.—C. G. Thomson ... 204

" Proceedings of the Perthshire Society of Natural Science, 1869—70" ... 214

" The Scottish Naturalist " ... 215

" Synopsis Coleopterorum Europæ et confinium anno 1868 descriptorum."—G. R. Crotch 236

" A Catalogue of the Insects of Northumberland and Durham (Revision of Coleoptera)." —T. J. Bold... 236

" The Honey Bee " (Bevan).—W. A. Munn ... 262

WOOD-CUTS.

Genital segments of Liburnia forcipata, pellucida, and discolor ... 26

Do. of Cixius stigmaticus, brachycranus, intermedius, nervosus, simplex, and similis ... 193

A new Moth-trap without the aid of light ... 276

ERRATA.

Page 24, line 27, for "Fab." read "Fieb."
„ 38, „ 13 from bottom, for "County" read "Connecticut."
„ 43, „ 23, before "perfect" insert "wings of the"
„ 44, „ 9, for "combination" read "corroboration."
„ 57, „ 7, „ "Walck." „ "Walch."
„ 57, „ 12, „ "*Sebous,*" „ "*Sebrus.*"
„ 61, „ 16, „ "*cæsii,*" „ "*echii.*"
„ 83, „ 12 from bottom, for "punctured" read "puckered."
„ 89, „ 20 „ „ „ "*C. fragilis*" read "*S. fragilis.*"
„ 104, „ 12 „ top, „ "emerges," „ "emerge."
„ 186, „ 20 „ bottom, dele "of" in "writing of this."
„ „ „ 11 „ „ for "rhombhoidal" read "rhomboidal."
„ „ „ 7 „ „ „ "place" „ "plate."
„ 187, „ 15 „ top, insert "colour" after "changing."
„ 210, „ 9 „ „ dele "hybernated."
„ 254, „ 8 „ bottom, for "*Cecidomyia*" read "*Gelechia.*"

OBITUARY.

	PAGE
Julius Lederer	19
A. H. Haliday	66, 91
A. Haward	66
J. T. Lacordaire	89
T. H. Allis	90
Rev. E. Horton	215
Rev. J. F. Dawson	216

No. 73.   JUNE, 1870.   [Price 6d.

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Mr. Prest's list of captures of Lepidoptera near York.—Mr. Prest writes to us complaining that there is a confusion in the names of some of the *Eupithecia* mentioned in his notes in our April No.; that there is also an error in date; and especially that he only took 1 *Agrotis ravida*, instead of a series, as there appears. We are sorry the notes of any of our correspondents should, as printed, misrepresent what was actually intended. But some of them should reflect whether the state of their manuscript does not lay them open to misrepresentation in print. The handwriting and construction are sometimes such that no amount of copying and editing can put into shape; the names, especially, being often utterly illegible. We ask those correspondents, therefore, to consider whether errors, when they occur, should not sometimes be placed to their account rather than to ours.—Eds.

Dr. Sharp is intending to make a journey in Spain or the Pyrenees, and would be very glad to hear of an entomologist who would accompany him. He has received information from Madrid that the state of the country is not unfavourable.—Thornhill, Dumfries-shire.

CHANGES OF ADDRESS.

H. Moncreaff, *from* 9, Wish Street, Southsea, *to* 145, High Street, Portsmouth.

Dr. Buchanan White, *from* Perth, *to* Castleton of Braemar; until *further notice.*

W. Downing, *from* Hoddesdon, *to* 59, Bloomfield Road, Plumstead, Kent.

Dr. Battershell Gill, *from* 5, Cambridge Place, *to* 9, Cambridge Terrace, Regent's Park, N.W.

EXCHANGES.

Dr. Buchanan White, Perth, wishes to obtain, by *purchase, exchange,* or *gift,* specimens of *Orthoptera* from any part of Britain, and he would be greatly obliged to any entomologist who will kindly assist him in obtaining specimens, or who will *lend* him specimens *for examination.* N.B.—Orthoptera should *be pinned*, and the *elytra* or wings spread out (at least on one side).

The Rev. Alexander Nash of Hardwicke, Gloucester, is anxious to obtain ova of almost any species of Diurni, Nocturni, Geometræ, and Pseudo-Bombyces, during the ensuing season. Mr. N. will be glad to make the best return he can, or to purchase.

Eggs of S. illustraria for other eggs or larvæ.—G. Elisha, 2, Cross Street, Ashby Crescent, City Road.

I have the following duplicates, which I shall be glad to distribute, if there are any entomologists who think it worth while to send the needful boxes and return postage:—5 M. Cinxia, 10 S. Hyperanthus, 4 C. Davus, 20 H. lineæ, 100 Z. Minos (var. nubigena), 17 Z. lonicerae, 20 Z. filipendulæ, 100 N. mundana, 20 E. vespertaria ♂, 12 B. betularia, 6 E. venosata, 4 C. diluta, 6 C. flavicornis, 4 H. nictitans, 10 T. fimbria, 20 O. suspecta, 20 X. cerago, 12 X. ferruginea, 20 E. fulvago, 15 A. rufina, 50 P. chi, 17 A. nebulosa, 20 C. trapezina, 4 A. litura, 2 C. exoleta, 6 C. umbratica, 12 A. pyramidea, 30 C. inquinatella, 6 P. subornatella, 6 P. ochroleucana, 12 G. longicornis, 20 P. fusca.—Edwin Birchall, Airedale Cliff, Newlay, Leeds.

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CONTENTS.

PAGE
Remarks upon the Classification of the Hesperidae.—*A. G. Butler, F.L.S.* ... 265
Notes on Carabidae, and descriptions of new species (No. 3).—*H. W. Bates, F.Z.S.* 268
On certain British Hemiptera-Homoptera (Revision of, and additions to, the *Aphrophoridae* and Ulopidae, *concluded*).—*J. Scott* ... 272
Note on Scydmaenus (Eumicrus) rufus, Müll. & Kunze, a species new to the British lists.—*E. C. Rye* ... 273
Note on a species of Corticaria new to the British lists.—*Id.* ... 273
Note on Cryptophagus Waterhousei, Rye.—*Id.* ... 274
Capture in Northumberland of a species of Aleochara new to the British list.—*T. J. Bold* ... 275
Capture of Hydnobius Perrisii near Gateshead-on-Tyne.—*Id.* ... 275
Capture of Pissodes pinophilus at Sunderland.—*Id.* ... 275
A new Moth-trap, without the aid of light (*with a cut*).—*G. A. Shaw* ... 276
On the hybernation of tree-feeding Lepidopterous larvae.—*W. N. Harwood* ... 276
Lepidoptera at Guestling in 1870.—*Rev. E. N. Bloomfield, M.A.* ... 277
Spring Lepidoptera at Leominster.—*T. Hutchinson* ... 277
Capture of Noctua sobrina.—*Id.* ... 277
Stray notes on the Fen Lepidoptera.—*C. G. Barrett* ... 277
Natural history of Camptogramma fluviata.—*Rev. J. Hellins, M.A.* ... 279
Notes on the Trichoptera of Zetterstedt's "Insecta Lapponica," in connection with the nomenclature of British species.—*R. McLachlan, F.L.S.* ... 281
A new British Geometra.—*H. Guard Knaggs, M.D., F.L.S.* ... 282
Jumping May-buds.—*Id.* ... 282
Proceedings of the Haggerston Entomological Society ... 282
" " " Entomological Society of London ... 283
Index, &c. ... i—xxiv

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